LEHIGH VALLEY/ READING

WORKING GROUP FINAL REPORT

January 10, 2000

Lehigh Valley/Reading Pennsylvania Ozone Stakeholder Working Group

FINAL REPORT

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Covener: Commonwealth of Pennsylvania
Tom Ridge, Governor James M. Seif, DEP Secretary

Facilitator: CDR Associates
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January 10, 2000

The Honorable James M. Seif, Secretary
PA Department of Environmental Protection
P.O. Box 2063
Harrisburg, PA 17105

Secretary Seif:

We respectfully submit the following report of the Reading/Lehigh Valley Ozone Stakeholders. This report provides the results of our efforts, including recommended control measures and supporting information for Berks, Lehigh and Northampton counties.

During the stakeholder process, we learned a great deal about ozone formation and reduction and gained a better understanding of the diverse points of view around the table. We hope that we might use our expertise in support of the recommendations and that you will call on us to assist in promoting and building support for the recommendations.

As part of our work, we provided information to the public. At two points in our deliberation, we held public meetings and gave members of the public opportunities to influence our recommendations. We believe that ongoing public outreach, including an Ozone Action Program, is essential to successful completion of our task. We stand ready to help with continued efforts at public education about this important issue.

We commend the Commonwealth for using this Stakeholder process to develop ozone-reduction strategies, and we appreciate your support during our deliberations. We look forward to your support for our recommendations within DEP and with other agencies of the Commonwealth.

Sincerely,

The Reading/Lehigh Valley Ozone Stakeholders from Berks, Lehigh and Northampton Counties

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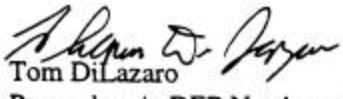

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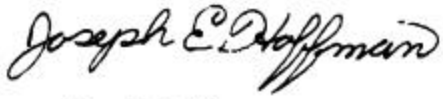

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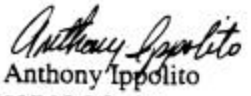

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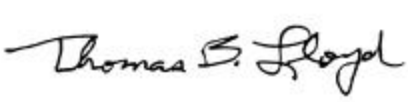

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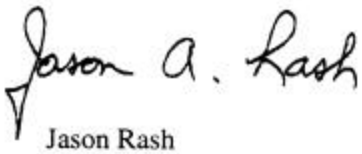

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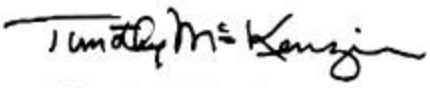

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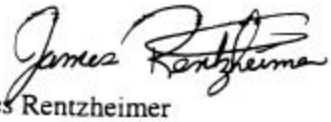

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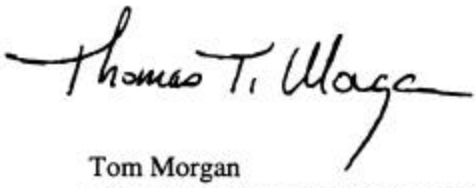

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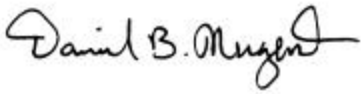

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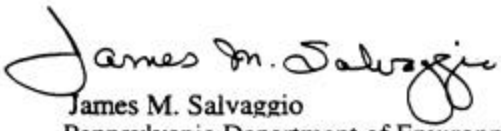

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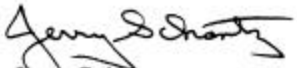

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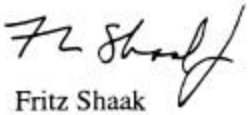

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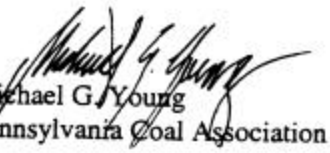

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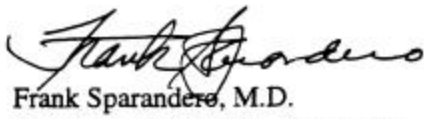

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I. INTRODUCTION

A. Recommendations

We, the Reading/Lehigh Valley Ozone Stakeholders (representing Berks, Lehigh and Northampton counties), after deliberating from March through December 1999, recommend that DEP take action to reduce ozone precursors. We recommend the following strategies:

- EPA 22-State SIP Call and Regional NOx Reductions;
- EPA Tier 2 Regulation;
- Vehicle Inspection and Maintenance;
- Statewide Gas Cap and Visual Inspection Within Safety Inspection;
- Heavy-Duty Diesel Testing;
- Heavy-Duty Diesel Idling Restrictions;
- Ozone Action Partnership;
- Lawn Equipment;
- Solvents and Coatings;
- Alternative Fuels;
- Autobody Refinishing;
- Open Market Emission Trading;
- Transportation Demand Management;
- Land Use and Development; and
- Additional Strategies.

The full text of each of these recommendations starts on Page 5.

In addition to the recommendations, this report contains the following information:

- The estimated reductions in ozone precursors;
- The full list of options considered;
- The list of criteria by which options were evaluated;
- A description of the modeling process used to estimate emission-reduction targets and evaluate potential strategies; and
- The operating agreements for the Stakeholder Group.

B. Background

In March 1999, the governor of the Commonwealth of Pennsylvania invited us to participate in a consensus-building process to recommend ozone-reduction strategies to the Department of Environmental Protection (DEP). In the invitation letter, DEP emphasized two important considerations:

1. Ground-level ozone continues to be Pennsylvania's most serious summertime air pollution problem. Children, the elderly and those with heart and respiratory illnesses are most at risk from its effects, but at high concentrations, everyone is at risk.

2. Ground-level ozone problems are not entirely local in nature. The movement of pollution from town to town and state to state requires that the Stakeholders work to ensure that each area is doing its fair share.

C. Context

Ground-level ozone is an important environmental and health issue. Secretary Seif charged our group with addressing the problem of ground-level ozone in the three-county area (Berks, Lehigh and Northampton counties). We quantified the ozone precursor reduction benefits of potential options and considered other benefits of these measures. Some of our recommendations have additional environmental benefits. We hope that our efforts are part of a broader societal effort to address the larger scope of environmental issues. We urge earnest and speedy implementation of our recommendations as part of improving the overall environment.

D. Interests

Early in the Stakeholder process, each of us expressed the interests we hoped to meet. The following is a compilation of these interests:

- Protect human health;
- Protect children's health;
- Educate the public about what individuals can do to reduce ozone;
- Meet the ozone standard (federal);
- Fulfill state requirements;
- Achieve fairness and equity among different emission sources;
- Give downwind areas a better chance of meeting the ozone standard;
- Keep local industries competitive with national, international competitors;
- Find solutions that are based on solid scientific information;
- Find solutions that are cost-effective;
- Find solutions that are affordable — to individuals, to businesses and to local governments;
- Find solutions that have cross-media environmental effects (positive effects in other environmental areas);
- Keep the big picture in mind — how this fits into the broader set of environmental/ecological issues;
- Help maintain quality of life;
- Achieve results quickly;
- Maintain the ozone standard over the long term;
- Minimize hassle/inconvenience;
- Take into account what different-sized facilities can afford to do;
- Involve the public in finding and implementing solutions;
- Optimize cost/benefit ratios;

- Encourage alternative transportation;
- Cease to encourage single-occupancy vehicle use;
- Find solutions that are enforceable;
- Protect agriculture and forests;
- Try to provide reasonable, realistic time frames;
- Have multiple tiers — short- to long-term strategies;
- Include mechanisms to verify results;
- Scope out unique, regional issues; make sure strategies are responsive to these; and
- Protect all life and the ecosystem;.

E. Criteria

In order to evaluate each option carefully, we developed criteria by which we might judge each option, based on the interests listed above.

We looked for solutions that…

- Are effective in protecting public health and quality of life
- Are cost-effective, measured in a variety of ways:
  - Cost per ton reduction of nitrogen oxides (NOx) and volatile organic compounds (VOCs);
  - Total cost;
  - Total tons of reduction;
  - Time required to achieve the result;
  - Capital and operating expenses;
  - Compared to the cost of *not* doing the reduction;
  - Benefits to tourism and outdoor recreation;
  - Reductions of other pollutants;
  - Reductions in medical costs;
  - Enables sustainable growth.
- Protect the ecosystem more broadly
- Are technologically feasible and based on solid scientific information
- (As a "tiebreaker" criterion) Have secondary environmental and economic benefits (including to agriculture and forests)
- Avoid unintended consequences
- Are politically viable — acceptable to elected officials and the public
- Are easily implementable and sustainable
- Are flexible — with opportunities for low-level decision making
- Contribute to public awareness about ozone
- Are consistent across regions, thus avoiding competitive dislocations
- Promote business and technological innovation

… and an overall package of solutions that

- Attains (short term) and maintains (long term) the ozone standard

- Is fair and equitable with regard to different sources of emissions
- Gives downwind areas a better chance to attain the ozone standard
- Addresses the problem long term — avoiding frequent, incremental regulatory changes and addressing transportation and sprawl issues
- Discourages high-polluting activities and encourages low-polluting activities
- Permits the continued economic growth of the area
- Produces reductions in the near term as well as the long term

II. RECOMMENDATIONS

Actual recommendations are in **bold-face types**. Supporting information is in light-face types.

A. EPA 22-State SIP Call and Regional NOx Reductions

We endorse the broad, regional emissions reductions called for by the EPA NOx State Implementation Plan Call (NOx SIP Call) to reduce NOx emissions in 22 states and the District of Columbia. Regional emissions reductions are necessary both to reduce the significant contribution from other states to high ozone levels in Pennsylvania and throughout the Northeast and to reduce Pennsylvania's contribution to ozone levels in downwind states. The regional NOx emissions reductions from electric generating units and other industrial sources proposed under the NOx SIP Call are essential for Pennsylvania to attain and maintain the ozone standard. Pennsylvania's implementation of these emission reductions, absent similar programs in neighboring states, would create an economic disadvantage and may jeopardize Pennsylvania's economy and jobs. It could also result in a worsening of air quality through the displacement of lower-emitting native generation by higher-emitting, less-costly generation outside Pennsylvania. Accordingly, **DEP should continue to take all necessary steps to support the 22-state NOx SIP Call or other efforts to achieve firm commitments by neighboring states to make equitable reductions on a comparable timetable, and should specifically support a cap and trade program on a broad regional (i.e., multistate) basis.**

B. EPA Tier 2 Regulation

We support the level of emissions reductions that would be achieved in the Pennsylvania regional area by the implementation of the EPA's proposed national Tier 2 rulemaking. The proposed Tier 2 rule includes cleaner, low-sulfur fuels and vehicle emission standards that can significantly reduce emissions of ozone precursors, thereby helping the three-county area attain and maintain the ozone standard. Moreover, the proposed rule addresses emissions from sport utility vehicles, minivans and pickup trucks, which typically have higher emissions than passenger cars and make up nearly half of all passenger vehicles sold nationally.

We recommend that DEP support a workable bank-and-trade provision (one that creates marketable credits) in the Tier 2 rule, and given such a provision, we urge refiners to introduce low-sulfur fuel early.

In the event that either the national Tier 2 program is diluted in contrast to its current proposed emission reduction requirements or the federal government fails to implement the national program, we recommend that DEP collaboratively engage with Pennsylvania regional (multistate) commissions/compacts/stakeholder processes and with upwind states to achieve emissions reductions substantially equivalent to those expected under the Tier 2 proposed rule.

C. Vehicle Inspection and Maintenance

1. Three-county program

To help attain and maintain the federal health standard in the three counties and downwind areas, **we recommend an annual, decentralized, enhanced vehicle emissions testing and vehicle maintenance program for the entire three-county area. The program should be based on the PA 97+ program in operation in Southwestern Pennsylvania.** We believe this program can reduce the precursors of ozone and improve the air quality of the three-county area.

PA 97+ includes such requirements as:

- An unloaded two-speed test with a tailpipe probe connected to an emissions analyzer to measure pollutants while the vehicle is running;
- A gas cap leak detection check;
- Emissions control device anti-tampering examination;
- Technician training; and
- Mandatory repair and re-testing by knowledgeable technicians (because properly repaired and maintained vehicles are the keys to achieving any air quality benefits from a vehicle emissions testing program).

We recommend that the program include:

- **A repair waiver limit no more stringent (i.e., no higher) than the Clean Air Act requires;**
- **An exemption for the most recent model year; and**
- **An exemption from the tailpipe test for vehicles that contain onboard diagnostic (OBD) equipment that provides complete, reliable emission performance information to testing stations, when the following conditions are met:**
  - **Sufficient number of vehicles are available to allow for cost effective purchase of testing equipment as determined by the I/M Work Group**
  - **Adequate number of inspection stations can be certified to provide convenient and responsible testing and repair service for vehicle owners**
  - **Sufficient safeguards against tampering with the OBD readings are in place**
  - **Complete EPA SIP guidance for implementing and estimating emission reduction credits from OBD testing.**

We agree that the Commonwealth should investigate existing programs and identify opportunities for public/private partnerships to reduce the impact of the repair costs for low-income drivers. The Commonwealth should make information about such assistance available to low-income drivers. In addition, any increase in the repair waiver threshold should be phased in gradually, statewide (where there is an I/M program), over a period of years.

2. Program evaluation and modification

As turnover brings newer, cleaner cars, equipped with onboard diagnostics, into the three-county fleet, and as EPA refines its regulations and modeling programs, making changes to the MOBILE model, DEP and Pennsylvania Department of Transportation (PennDOT) should modify the program appropriately. **We recommend that the Commonwealth conduct a baseline evaluation of the level of vehicle emissions in the three-county area at the start of the program and periodically evaluate the I/M program against this baseline, disseminate the results and modify the program as needed, to ensure its effectiveness. The cost-effectiveness of the I/M program shall be evaluated concurrently and be considered in decisions affecting modifications to the program.**

3. Vehicles from outside the three-county area

Recognizing the role that new technologies can play in reducing mobile source emissions, **we recommend expanding the enhanced inspection and maintenance remote sensing program to identify and require repair of high-emitter vehicles traveling within the I/M testing counties from other Pennsylvania counties. We recommend that DEP work with the PennDOT I/M Work Group to determine the best method of implementing this program.**

D. Statewide Gas Cap and Visual Inspection Within Safety Inspection

We recommend that a visual inspection of the vehicle emission control system and gas cap pressure test be added to the annual Pennsylvania safety inspection program statewide. This recommendation simply assures the continuation of use of the pollution-control devices already required as original equipment by federal laws. This would only require a minimal investment by repair shops in the less-populated areas and would have statewide benefits as cars move from areas that do not require inspection and maintenance testing into areas that do. In addition, drivers will spend less money on fuel and repairs as a result of properly functioning pollution-control equipment.

Visual inspection of vehicle emission control system: **The visual inspection would look for the presence and condition of the following emission control devices if originally equipped:**

- **Catalytic converter;**
- **Exhaust gas recirculation (EGR) valve;**
- **Positive crankcase ventilation (PCV) valve;**
- **Fuel inlet restrictor;**
- **Air pump system;**
- **Evaporative emission control system; and**
- **Gas cap.**

A vehicle would fail the visual inspection if applicable required emission control devices are missing, not properly connected, in disrepair or not the correct type (or equivalent) certified for the configuration of that vehicle.

Gas cap pressure test: **The gas cap can be tested to determine if it holds a specified pressure.** A leaking cap vents gas fumes (hydrocarbons) into the atmosphere.

E. Heavy-Duty Vehicle Testing

The term "heavy-duty vehicle" is used here to mean vehicles over 9,000 lbs. gross vehicle weight rating.

Many motor vehicles produce and contribute to air pollution, and all should be part of the solution to the ozone problem in Pennsylvania. We believe that, to be fair and equitable, a system of vehicle emissions testing cannot be limited to automobiles. **Therefore, we recommend that DEP work with other state agencies to develop and establish a roadside emissions testing program for all heavy-duty vehicles.**

The program shall be based on the Ozone Transport Commission (OTC) resolution adopted June 16, 1999, endorsing the testing approach proposed by the Northeast States for Coordinated Air Use Management (NESCAUM). NESCAUM proposed a program based on reciprocal agreements among the OTC states regarding testing protocols and grace periods for repairs. **DEP shall pursue legislative changes required to implement the program if necessary, and immediately work to draft necessary regulations. DEP should also work to quantify the emission reductions associated with the program and seek SIP credit from the EPA.**

The program should also include (but not be limited to) the following:

1. **A roadside test to which any heavy-duty vehicle could be subject, regardless of where registered. The test should be conducted primarily at weigh stations in conjunction with other inspections. The test procedure should minimize delays and not contribute to traffic congestion.**
2. **A testing procedure that authorizes agents to stop and test heavy-duty vehicles if visible emissions warrant.**
3. **A fleet test that would bring tour buses and other vehicles not stopping at weigh stations into the testing program.**

F. Heavy-Duty Vehicle Idling Restrictions

Idling restrictions offer several economic, environmental and social benefits, primarily reduced levels of ozone (through reductions in NOx emissions), and others, such as reductions in particulate matter emissions, engine wear, fuel consumption, heat, odor and noise. **We recommend that this idling restriction apply year-round** because of the benefits to the environment and public health and welfare. **We recommend that DEP work with the Legislature to establish a law limiting the idling of all heavy-duty gas and diesel vehicles to short periods of time (such as three to five minutes).**

DEP can use current laws and regulations from neighboring states, such as New Jersey and New York, as a basis for draft legislation and regulations in Pennsylvania. However, there would be certain cases where these restrictions would not apply, including but not limited to:

- **Vehicles that are motionless due to traffic or access conditions beyond the operator's control;**
- **Vehicles being weighed at weigh stations;**
- **Fire, police and public utility vehicles performing emergency operations;**
- **Vehicles engaged in work activities which require the engine to be running — such as farming, mining and landfill operations — within the property or work site;**
- **Engines used for auxiliary purposes, such as controlling cargo temperature;**
- **Times when the weather is below 25 degrees Fahrenheit; and**
- **While the vehicle is being repaired.**

G. Ozone Action Partnership

We recommend that DEP establish an Ozone Action Partnership in the three-county area, similar to those in the Southeast, Southwest and Susquehanna Valley areas, to educate the public about ground-level ozone and encourage voluntary action by individuals and organizations to reduce ozone. DEP should identify emission reductions from this program and seek SIP credit from EPA.

While the Ozone Action Partnership, once formed, will decide its own course of action, we urge it to do the following:

- **Establish Ozone Action Days;**
- **Tailor messages to the level of environmental consciousness of different target audiences (For example, the Partnership might urge the general public simply to refuel after dark and avoid mowing lawns on high-ozone days, while it might reach out to environmentally active citizens and urge them to take more significant steps, such as greatly reducing their driving and their electricity consumption and buying more energy-efficient homes and vehicles.); and**
- **Promote partnerships with local industries to voluntarily reduce NOx and VOC emissions and energy use on Ozone Action Days.**

H. Lawn Equipment

We support the continuation of DEP and private efforts to promote the use of cleaner and alternative-power lawn equipment.

I. Solvents and Coatings

We recommend that DEP adopt its proposed solvent-cleaning operations rule with those suggested revisions from relevant public comments that strengthen the rule and revise it to

provide exemptions for legitimate safety requirements and to be more cost-effective and efficient in its implementation. Further, we recommend that DEP investigate and propose a rulemaking addressing the prevention of air pollution from architectural coatings and consumer products. This proposed rulemaking may be modeled after the New Jersey Department of Environmental Protection's regulation, found in the NJ Administrative Code at Title 7, Chapter 27, Subchapter 23. Research reveals that the materials regulated and the limits imposed in the New Jersey regulation are largely consistent with STAPPA/ALAPCO's model rule proposed limits on their identified top ten coating groups for 1997 and with New York Department of Conservation's current regulations on architectural, industrial and maintenance coatings. (STAPPA/ALAPCO is the State and Territorial Air Pollution Program Administrators and Association of Local Air Pollution Control Officials.) **The Department is directed to investigate other regulations/proposals to canvas the range of possible models.** The final objective is to draft a rule that not only receives approval in the Commonwealth but could prospectively be adopted on a regional basis, such as the northeast Ozone Transport Region. **In addition, DEP should investigate and promote strategies that take advantage of ozone-reduction benefits of reflective and other coatings on rooftops, roadways and other appropriate surfaces.**

J. Alternative Fuels

We strongly support the continuation and expansion of Pennsylvania's Alternative Fuels Incentives Grant Program and similar voluntary alternative fuels efforts, such as but not limited to, liquefied petroleum gas, compressed natural gas, propane, electric, hybrid, hydrogen, fuel-cell and solar energy vehicles. Both the Southeast and Southwest Ozone Stakeholders made similar recommendations in 1996. We agree that expanding the use of alternative fuel vehicles can provide significant air quality benefits and deserves increased attention and commitment from Pennsylvania.

We recognize that the use of alternative fuel vehicles (AFVs) provides environmental benefits, decreased dependence on imported resources and reduced maintenance needs (when compared with conventionally fueled vehicles). Until the problem of adequate infrastructure and public demand is resolved, progressive alternative fuels approaches will flounder. The Commonwealth needs to be the flagship in this area, to assist and educate public and private organizations interested in this technology.

In order to enhance current and future AFV efforts, we recommend the following strategies:

- **Amend the alternative fuels legislation to increase the grant percentage covered by the program (The original legislation was tailored to be market-driven, with subsidies being reduced every two years, but technological advances have not been able to meet this schedule. The statute must be amended.);**
- **Promote alternative fuels as part of the governor's "Green" Initiatives and Green Government Council;**
- **Encourage the constructing and financing of alternative fuel facilities;**

- **Advocate for additional financial incentives, grants and/or tax incentives to public and commercial fleet operators with central fueling operations to convert to alternative fuels;**
- **Draft alternative fuel tax credit and incentive packages;**
- **Encourage the establishment of partnerships to promote the use of alternative fuels and alternative-fuel vehicles for cities throughout Pennsylvania;**
- **Link EPA's Voluntary Measures Emissions Credits to financial incentives;**
- **Publicize alternative fuel success stories and increase public education statewide;**
- **Improve signage and marketing to inform the public that stations exist;**
- **Dedicate additional funding to the alternative fuels grant program; and**
- **Promote the use of vehicles with dedicated fuel systems over retrofitting existing vehicles.**

K. Autobody Refinishing

In 1997, the Southeast and Southwest Ozone Stakeholder Groups issued their final reports. Each report contained a recommendation about autobody refinishing. The Southeast Stakeholders recommended changing the VOC content of painting and refinishing materials; material handling, application and disposal; and training. The Southwest Stakeholder Group recommended limiting the sale of paint containing VOCs to auto and truck body repair shops that have high-volume, low-pressure equipment. It also included training and handling provisions. Because of these recommendations, DEP formed a new Stakeholder Group to reconcile the differences and produce a draft regulation. The Autobody Refinishing Stakeholders drafted a regulation that included a registration provision for refinishing facilities. After public comment and internal review, DEP removed the registration and permit requirements from the most recent draft.

A fair distribution of the cost of ozone reduction requires that point, mobile and area sources do their fair share. We recognize that VOC emissions from autobody refinishing contribute to ozone formation. We recognize that regulating a large number of small emitters (area sources) can be time consuming and costly. Despite the difficulty**, we recommend that the Commonwealth find ways to get the statewide reductions that would have accrued from the autobody refinishing recommendations from the Southeast and Southwest Stakeholders and the Autobody Refinishing Stakeholders**. We recognize that DEP resources are currently insufficient to implement the permitting provision of the original recommendation of the Autobody Refinishing Stakeholders.

Therefore, we recommend that DEP do the following:

1. **Work with other Commonwealth agencies to implement the intent of the proposed autobody regulation emerging from the Autobody Refinishing Stakeholder Group, to ensure that autobody refinishing facilities purchase low-VOC equipment and train their staff to use that equipment;**
2. **Continue its education and outreach efforts to promote the use of low-VOC equipment; and**
3. **Continue to use and publicize the hotline for members of the public to report shops that do not comply with regulations.**

We recognize that the higher cost of the equipment may be recovered by savings in operating costs. We also recognize the direct health benefit that accrues to the workers in those facilities whose exposure to paints and solvents is reduced.

L. Open-Market Emission Trading

The Stakeholders believe DEP should explore all viable methods for achieving emissions reductions of ozone precursors. To that end, **we recommend that DEP closely study the usefulness and real-world effectiveness and environmental and health benefits of open-market trading programs for VOC and NOx emissions from stationary sources, including area sources.** An open-market trading program is a market-driven mechanism that allows trading of real, surplus, quantifiable and enforceable emissions reductions between emissions sources to achieve compliance with certain regulations.

We endorse DEP's open-market trading pilot program in Southeastern Pennsylvania as a good tool for determining the effectiveness of this market mechanism and for isolating potential areas of concern, including environmental justice issues. **DEP should evaluate the results of the pilot, along with open-market trading regimes in other states.**

M. Transportation Demand Management

Efforts to increase mobility alternatives — carpooling, vanpooling, mass transit, telecommuting, walking and biking — will have air quality and other public health, environmental and safety benefits. We believe mandatory measures to regulate these choices would not be publicly acceptable. We also recognize that many government bodies— particularly PennDOT—have a greater potential role than DEP in encouraging alternative transportation.

Therefore, we recommend that DEP do the following:

1. **Advocate strongly, in its dealings with PennDOT, the governor's office and all appropriate government bodies at all levels, for serious consideration of the air quality implications of their transportation decisions and for measures that will promote voluntary reductions in single-occupancy vehicle use. DEP should balance these needs with the need to control public expenditures. DEP should focus on the most economical strategies first.**
2. **Designate a DEP staff person to coordinate efforts on alternative transportation and related smart-growth issues, with the long-term objective of providing a central clearinghouse for information about these efforts.**
3. **Seek opportunities to partner with public or private organizations to promote alternatives to single-occupancy vehicle use.**
4. **Encourage the Commonwealth and other employers to institute personnel policies and programs statewide that encourage employees to carpool, use mass transit or use some other alternative to single-occupancy-vehicle commuting, and designate a DEP staff person to coordinate these efforts. Policies and programs might include the following:**
    - **Staggered shifts, flextime, and/or compressed time;**

- **Telecommuting;**
- **Carpool/vanpool matching service;**
- **Guaranteed ride home for car poolers/van poolers;**
- **Free or discounted transit passes; and**
- **Rewards or incentives for commting by alternative modes.**

5. **Issue a brief, annual report summarizing DEP's efforts to promote alternatives to single-occupancy vehicle travel. Make the report available on DEP's website and in its newsletter *Update*.**

A detailed list titled "Transportation Demand Management Strategies" is available from DEP.

N. Land Use and Development

The Governor's 21st Century Commission concluded that land use should be the top-priority environmental issue in the near future. We agree that this issue deserves serious attention. We recognize that growth management is complex and that other groups are better equipped to make detailed recommendations on this subject. We limited our discussion to the relationship between land use and air quality and limited our recommendations to the following general conclusion:

We recommend that the Commonwealth and DEP support efforts to accomplish the following:

- **Encourage, and remove barriers to, development in brownfields and other previously developed areas;**
- **Recognize the importance of farmland and open space;**
- **Encourage, and remove barriers to, regional cooperation and coordination among local governments; and**
- **Ensure that smart growth programs have a positive impact on air quality.**

O. Additional Strategies

We believe our recommendations represent this three-county area's fair share of emission reductions. However, in light of modeling, legal and regulatory uncertainties and the significance of pollutant transport, we recognize that more may need to be done either locally or on a larger regional basis in order to meet federal air quality standards as expeditiously as practicable. **Therefore, we recommend that DEP monitor and evaluate the effectiveness of the above recommendations and consider additional strategies as necessary — particularly statewide and regional strategies. We urge DEP to apply the criteria we used in our decision making. We also recommend that DEP continue to be conscientious about obtaining public input into its decision-making.**

III. THREE-COUNTY EMISSION REDUCTION ESTIMATES FOR STRATEGIES LISTED IN RECOMMENDATION SECTION

Recommended Control Measures

Measure Number	Report Section	Control Measure	VOC 2007 Emission Reduction tpd	NOx 2007 Emission Reduction tpd
1a, 10a	A.	EPA 22 State SIP Call	0	70.8
46	B.	EPA Tier 2 Regulation	3.7	9.5
51a	C.	Vehicle Inspection and Maintenance Program	19.6	14.9
100	D.	Statewide Gas Cap and Visual Inspection*	0.1	0.05
52	E.	Heavy-Duty Vehicle Roadside Testing	0.4	0.6
56b	F.	Heavy-Duty Vehicle Idling Restrictions	0	0.2
85	G.	Ozone Action Partnership	0.8	0.01
82SC	H.	Lawn Equipment	0.2	0
20, 30, 36	I.	Solvents and Coatings	5.0 - 6.2	0
58	J.	Alternative Fuels	0.81	1.01
99	K.	Autobody Refinishing	~1	0
86	L.	Trading	Unknown	Unknown
69, 71, 72	M.	Transportation Demand Management	< 0.4	< 0.5
92, 94	N.	Land Use and Development	0.71	0.52
TOTAL REDUCTION			**33 - 34**	**98.0**

2007 Lehigh Valley Baseline Emissions	131	211
Reduction	33 - 34	98
% Reduction	26%	46%

* This only includes incremental benefits in the three-county area, not reductions statewide.

IV. EMISSION REDUCTION OPTIONS

Measure Number	Source Category	Control Measure	VOC			NO_x		
			2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton	2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton
1a	Utilities	NOx SIP Call	1.0	--	--	69.0	49.7	$1,500
1b		Lower than NOx SIP Call limits	1.0	--	--	19.3	6	$3,500-6,200
2		Conservation/energy efficiency						
3		Promote EPA green lights/energy efficiency building programs						
4		Subsidy for high efficiency AC units						
5		Alternative to SIP Call: Plan for Fair Share reductions throughout OTAG area to reduce out-of-state transport						
6		Take care not to substitute one source for another - net gain consideration						
7		Incentives for household energy efficiency projects						
8		Promote/incentives for use of off peak service (households)						
9		Incentives for zero emission generation						
10a	Industrial	NOx SIP Call	18.44			62.6	17.8	$1,200-1,500
10b		Extend point source threshold to 25 tpy	18.44			44.8		
11		Lower than NOx SIP Call limits				44.8	10-22	$2,000-5,000
12		Incentives for co-generation						
12SC		Fuel switch to lower polluting fuel during ozone action days (use gas prices as an example)	0.2	--	--	11.8	1.5-7.0	$0-7,500
13	Fuel Combustion - Other	New water heater NOx emission standards	0.023			0.41	0.03	$0
14		Lower than NOx SIP Call limits						
15		Promote incentives for waste recycling as raw material substitutes, streamline regulatory approvals						
16		Incentives for electric cogeneration						
17		Emission Reductions from Restaurant Operations	0			0		
18	Chemical & Allied Products	Organic chemical manufacturing	0					
18SC		Further reductions in VOC emissions via prevention of fugitive emissions and leaks						

Measure Number	Source Category	Control Measure	VOC			NO_x		
			2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton	2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton
		(and reward successful spill prevention)						
19		Flare evaluations						
20	Metals Processing	Degreasing control	4.0	1	Savings to $1,400	0	--	--
21	Other Industrial Processes	NOx cement kiln controls	0	--	--	23.36	6-16	$1,000-6,500
22		Emission reductions from electronic components manufacturing	0.04	0.03	$6,000	0	--	--
23		Encourage non-solvent stripping (plastic bead blasting) and cryogenic POTWs						
24	Petroleum & Related	Fugitive sources (further emission reductions)	0.16			0		
25		Asphalt manufacturing and use	0.97			0		
26		Roofing products manufacture	0.08			0		
27	Solvent Utilization	Graphic arts/printing Low VOC inks RACT to small sources	2.17	1.4	$3,500 to $4,800/ton for add-on controls, lower costs for compliant products	0	--	--
28		Dry cleaner conversion to non-VOC	0.36	0.32	Unknown	0	--	--
28SC		Tax credits for small shops (graphic arts and dry cleaning) to convert to low VOC compounds. Credits for new equipment purchase or material conversion						
29		Limits on household painting/waterproofing during O3 action periods	7.06			0	--	--
30		Commercial/consumer solvents further reductions	6.91	4.1	Unknown	0	--	--
31		Emission reductions from adhesives (Rule 1168)	0.14	0.01	$6,830	0	--	--
32		Emission reductions from plastic, rubber, glass coatings (Rule 1145)	2.15	1.27	$1,110	0	--	--
33		Emission reductions from solvent usage (Rule 442)						
34		Consumer product education labeling program						
35		Public awareness/education programs -						

Measure Number	Source Category	Control Measure	VOC			NO_x		
			2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton	2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton
		area sources						
36		Further emission reductions from architectural coatings (Rule 1113)	7.07	3.5	$8,000-13,000	0	--	--
37		Emission reductions from pesticide applications	2.80	0.56	$1,000	0	--	--
38	Storage and Transport	a. Service stations vehicle refueling - Stage II controls b. Install low pressure/vacuum relief valves at gasoline service stations	1.78 0.62	1.4 0.5	$1,000-3,000 $850	0	--	--
39		Further emission reductions from Floating Roof Tanks	0.03	0.02	$2,500	0		
40		Large AST breathing and controls (> 12,000 gal)						
41		Use DEP size definitions for AST Control Regs.						
42		Better regulations re: truck-tractor trailer servicing terminals and warehouse operations	0.07			0		
43	Waste Disposal	Emission reductions from composting	0			0		
44		Gas collection systems at landfills and combust the captured gases	0.64	0.44	$700	0		
45		Open burning ban	0			0		
	Highway	**A. Vehicle Technology**						
46		1. Tier 2 emission standards beginning in 2004	51.96	3.7	$2,134*	49.8	9.5	$2,134*
47		2. Preheat catalyst (cold start emission reductions)						
48		3. Engelhard ozone catalyst						
49		4. Tax support of research into fuel efficient vehicles						
50		5. Tighter truck emis. stds.	2.58			19.10		
		B. In-Use Vehicles						
51a		1. I/M program	51.96	16.5-32.3		49.8	14.9-25.0	
51b		2. Remove the 5,000 mile exemption		0.52	$550,000*		0.45	$550,000*
52		3. Roadside checks for HDV	2.58	Unknown		19.10	Unknown	
53		4. Expand auto testing Statewide (State program)		82.3			80.8	
54		5. Remote sensing to identify or remove super emitters a. Gross emitter program	57.9	0.13	$10,000	73.3	0	--

Measure Number	Source Category	Control Measure	VOC			NO_x		
			2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton	2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton
		b. Clean screen program		(8-1.6)	Same as I/M		0	--
55		6. Accelerated retirement of light-duty vehicles			$2,500-12,500			$2,500-12,500
56a		7. Accelerated retirement of heavy-duty vehicles						
56b		8. Diesel truck and bus idling restrictions					Unknown	Small
57		9. Heavy-duty diesel vehicles: early introduction of low-NOx engines	2.58	--	--	19.10		
		C. Fuels Options						
58		1. Alternative fuel vehicle incentives a. Light-duty b. Transit fleet c. Heavy-duty diesel trucks		 0.76 0.05 0.15	 $9,058* -- --		 0.71 0.30 1.11	 $9,058* $5,290 $3,332
59		2. Shared clean fuel stations for small fleets						
60		3. Tier 2 sulfur gasoline						
61		4. Cap distillation index (DI), aromatics in fuel	51.96	3.6	$3,150	49.8	--	--
62		5. Federal Reformulated Gasoline		6-17	$3,500-9,000*		1.7-3.3	$3,500-9,000*
63		6. Lower RVP (7.8 psi) Gasoline		2.1-6.1	$2,200-6,500		0.2-0.5	--
64		7. Lower sulfur gasoline (pre-2004 introduction)						
64SC		Clean diesel fuel (CA reform diesel)	2.58	--	--	19.10	0.76	$30,000
		D. Transportation System Modifications						
65		1. Increase State gas tax. Market-based transportation pricing		.009-.037	Very high		0.012-0.048	Very high
66		2. Technical assistance in fleet scheduling						
67		3. Tax and emission credits to employers who provide transportation/buses to employees		.001-.006	$13,000-37,000*		.001-.008	$13,000-37,000*
68		4. Tax parking benefits and parking lots		.021-.077			.028-.100	
69		5. Credit for employer plans to adjust work schedules to reduce peak travel		.018-.071	Savings		.023-.092	Savings
70		6. Incentives for bicycle and pedestrian to work - routes, construction, facilities. Bikepaths/walkways		0.5-1.0	Unknown		0.4-0.5	Unknown

Measure Number	Source Category	Control Measure	VOC			NO_x		
			2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton	2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton
71		7. Incentives/support for car and vanpool (promote alternate transport)		0.012-0.253	Savings		0.015-0.329	Savings
72		8. Incentives/support for telecommuting		0.012-0.047	Savings		0.015-0.047	Savings
73		9. Public transit infrastructure		0.006-0.008	>$100,000*		0.008-0.011	>$100,000*
74		10. No new roads		(1.9)	Unknown		(2.7)	Unknown
75		11. Busing/rail program (combine with Measure 73). Upgrade heavy rail and add light rail						
76		12. Increase driver age to 18 and free bus passes to teenagers		0.31	Savings		0.49	Savings
77	Off Highway	Credits for replacement of existing pleasure craft engines with new lower polluting engines	4.18			0.12		
78		Container spillage control measures	0.68			0.09		
79		Other spillage control (marine recreation)	4.20			0.21		
80		Catalytic control of VOCs (> 50 hp)	1.15			2.00		
81		Explore farm communities impacts to air pollution from equipment	Gas 1.4 Diesel 0.5			Gas 2.4 Diesel 1.3		
82		Encourage old equipment retirement or relocation to less affected region prior to retirement						
82SC		Subsidize electric lawnmowers	0.68	0.1-0.5	$1,200	0.09	0	
83		Education on proper maintenance and use						
84		Lower sulfur fuel						
85	Other	O3 action program						
86		Bank and trading						
87		Innovative permitting						
		A. Plantwide applicability limits mechanism for pre-approved BAT or periodic BAT review						
		B. Allow innovative air control methods for existing sources - voluntary control - biofiltration						
		C. Allow beneficial environmental programs - voluntary clean fleet to offset stationary						
88		Promote renewable energy						

Measure Number	Source Category	Control Measure	VOC			NO_x		
			2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton	2007 Emissions tpd	2007 Emission Reduction tpd	Cost Per Ton
89		Delist low O3 forming organics (account for reactivity potential)						
90		Control use of lawn/garden via education or other means	0.68			0.08		
91		Sustainable growth						
92		Brownfields development instead of siting new facilities in greenfield areas		1.9	Unknown		2.6	Unknown
93		Consumer product distribution efficiency improvements (wholesale to retail)						
94		Smart growth and development (better planning) through education and outreach initiatives like DEP Growing Green Initiative to help reduce air emissions. Includes sustainable growth		1.29	Unknown		2.58	Unknown
99	Autobody Refinishing	Use of low-VOC equipment and gun cleaning, training of staff and adopting more stringent VOC limits for coatings	4.83	~1				
100	Highway Vehicles**	Statewide gas cap and visual inspection within state safety inspection		.1			.05	

*Combined VOC plus NOx cost per ton.

** This only includes incremental benefits in three-county area, not reductions statewide.

V. MODELING

Grid-based photochemical modeling was performed during the Stakeholder deliberations using the Comprehensive Air Quality Model with Extensions (CAMx). CAMx is a new regional photochemical model containing many advanced features such as grid nesting, sub-grid-scale Plume-In-Grid and ozone source apportionment algorithms. EPA used CAMx in its NOx SIP Call photochemical modeling analyses, and it is now being widely used in SIP modeling studies throughout the United States.

CAMx was used to simulate hourly ozone levels across the modeling domain for two meteorological periods, or episodes. Based on observed high one-hour and eight-hour ozone concentrations and availability of data bases to support modeling, the July 14-20, 1991 and July 7-18, 1995 Ozone Transport Assessment Group (OTAG) episodes were used. The episodes were multi-day events, with one-hour and eight-hour ozone values above applicable Federal ozone ambient air quality standards on several days throughout the Pennsylvania study area, and surrounding regions. In addition, the July 1991 and July 1995 episodes exhibit many of the light and variable wind, hazy and high temperature conditions that are commonly associated with ozone exceedances throughout the eastern United States.

The modeling domain used with CAMx covers the entire 37-State OTAG domain, with the finest resolution (4 kilometer square grids) covering the portions of Pennsylvania, Maryland, New Jersey, Delaware, Virginia and West Virginia that are most likely to influence ozone levels in the Stakeholder area. This allowed consideration of long-range transport with the most detailed resolution of emission sources near the Stakeholder area.

Emission estimates used in the modeling for the Commonwealth were from the 1996 DEP-based emission inventory, with projections to 2007 to account for the expected effects of federal and state air pollution regulations over the 1996 to 2007 time period. The inventory for the remaining states is from the Section 110 NOx SIP Call database.

A. Emission reduction target runs

We used modeling initially, to estimate emission reduction targets by testing three preliminary emission reduction scenarios and a baseline as follows:

1. Baseline: 2007 emissions, 2007 on-the-books strategies and NOx SIP Call;
2. NOx SIP Call with an additional percent reduction in NOx and 30 percent reduction in VOC;
3. NOx SIP Call with an additional 40 percent reduction in NOx, 15 percent reduction in VOC; and
4. NOx SIP Call with an additional 15 percent reduction in NOx, 40 percent reduction in VOC.

These reductions were taken from a region including the eastern half of Pennsylvania, plus most of Maryland, also Delaware, New Jersey and New York City.

The results of these emission reduction target runs were as follows:

Base Case – NOx SIP Call

- Fairly low concentrations in Pennsylvania relative to the ambient standard for one-hour average ozone
- For the eight-hour averages – there is a broad region in eastern and central Pennsylvania above the standard

For 30/30 run (30 percent reduction in both VOC and NOx, beyond the NOx SIP call)

- Eight-hour average — the area that exceeds the standard is smaller, but not significantly changed

Stringent NOx-reduction strategy: 40 percent NOx/15 percent VOC

- Ozone levels are improved compared with the 30/30 reduction, but it still leaves some areas in southeast Pennsylvania above the 84 ppb eight-hour target

Stringent VOC-reduction strategy (15 percent NOx/40 percent VOC)

- Ozone is higher than in either the 30/30 or 40/15 cases, with larger areas of nonattainment in southeast Pennsylvania.

Conclusions:

1. Reaching the one-hour standard: the area is very close with baseline 2007 emissions, on-the-book controls and the NOx SIP Call;
2. The eight-hour standard is difficult to achieve. Eight-hour-standard attainment could require substantial emission reductions;
3. There appears to be more ozone benefit from reductions in NOx than from VOC; and
4. There is a slight risk of isolated NOx disbenefits in downwind areas in the higher NOx reduction strategies.

B. Modeling Scenarios—Testing Specific Strategies for the June 1995 Episode

To test specific emission reduction strategies, we created three modeling scenarios:

Scenario A

- NOx SIP Call reductions in Pennsylvania and in upwind states;
- I/M PA 97+ program; and
- Tier 2 Fuel and Vehicle Standards as currently proposed by EPA.

Scenario B

- Scenario A;
- NOx reductions beyond the NOx SIP Call for point sources;
- Low Reid vapor pressure (RVP) gasoline (7.8 RVP) throughout the three-county area; and
- Heavy-duty diesel vehicle emissions testing statewide.

Scenario C

- Scenarios A and B;
- Fixed amount of VMT reductions (for all highway vehicle classes) to yield 10 percent NOx and 10 percent VOC reductions;
- Growth management and brownfields redevelopment;
- Further solvent VOC reductions;
- Ozone Action Day measures;
- Lawn and garden equipment electrification;
- Alternative fuels for fleet vehicles;
- Vehicle refueling controls; and
- Restricted heavy-duty truck idling.

C. Modeling Results

The baseline case is 2007 Clean Air Act, without NOx SIP Call

Baseline

- The daily one-hour maximum ozone concentrations show attainment of the one-hour standard throughout the three-county area;
- Peak one-hour levels were 115-124 ppb, just below the one-hour standard;
- Peak concentrations downwind of Baltimore and Philadelphia substantially exceed the one-hour standard; and
- Much of the area exceeds the eight-hour standard for this modeled episode. Ozone concentrations are generally in the 84-100 ppb range, compared with the 84 ppb standard. Occasionally, levels reached concentrations above 100 ppb as an 8 hour average within the stakeholder area.

Scenario A

- No exceedances of the one-hour standard were observed in the three-county area. However, concentrations downwind of Philadelphia near New York City are just above the standard, but show substantial improvement;
- Ozone increases slightly by going from the baseline to Scenario A (this is a NOx disbenefit). This occurs in isolated grids, not in areas of peak concentrations, and does not result in standard exceedances;
- The eight-hour standard is met for most of the area in Scenario A, except small areas just above the standard (in the 84-100 ppb range) for several modeled days; and
- The difference between Scenario A and base case eight-hour average ozone is greater than 14 ppb in much of the area.

Scenario B

- Results for the one-hour averages — showed only minor additional reduction;
- For the eight-hour averages — also showed only minor differences in ozone levels between Scenario A and Scenario B; and

- Incremental difference between Scenario A and Scenario B: 2-6 ppb in some areas, but mostly about 2 ppb or less.

Scenario C

- Results for the one-hour averages — largely unchanged from Scenario B — no modeled exceedance;
- Incremental difference between Scenario A and Scenario C: 2-6 ppb in more areas than Scenario B, but still mostly 2 ppb or less; and
- For the eight-hour averages — again, virtually no differences were observed in ozone levels between Scenario A and Scenario C.

VI. OPERATING AGREEMENTS

The Stakeholders reached agreement to operate according to the following procedures and guidelines:

PURPOSE

To develop and recommend for implementation control strategies and solutions to meet and maintain the national health-based standard for ground-level ozone for the benefit of local citizens, the regions and the environment.

ROLES

Participants

Each member of the Stakeholder Group is expected to:

(a) regularly attend and prepare for work sessions;
(b) clearly articulate and represent the interests of his/her group;
(c) listen to other points of view and try to understand the interests of others;
(d) openly discuss issues with people who hold diverse views and participate in a cooperative problem solving procedure to resolve differences;
(e) generate and evaluate options to address the needs expressed by all Stakeholders; and
(f) keep his/her constituent group(s) informed, solicit their input, and ensure that their views are accurately represented in the Stakeholder process.

Facilitators

The central role of the facilitators is to ensure a successful process and promote consensus building among the participants, not to promote any particular outcome.

Facilitators from CDR Associates will:

- ensure that the process moves as efficiently as possible;
- design work session agendas;
- conduct the meetings;
- enforce ground rules that are accepted by the group;
- communicate with stakeholders between meetings, as needed;
- ensure that important information is available to the participants in advance of each meeting;
- draft, distribute and revise meeting summaries; and
- delegate any of the above to DEP facilitators, as appropriate.

DEP

DEP has designated representatives who will participate as equal members of the group. Jim Salvaggio will represent DEP in both groups. Tom DiLazaro will represent the DEP northeast regional office. Wick Havens will coordinate with technical consultants. Christy (Hubley) Young will act as DEP media liaison. Four DEP facilitators who are not in the Air Quality Bureau – Bob France, Andy Hartzell, Alice Kline and Patti Peck-Olenick - will assist the CDR facilitators. Lindy Mendelsohn and Karen Mitchell will supervise the CDR Associates contract and the DEP facilitators. Phyllis Lindsay will provide logistical support to the group.

Pechan Avanti

Pechan Avanti will provide technical support to the group.

CONSENSUS DECISION MAKING

The participants will use a consensus decision making process. Consensus is an agreement that all stakeholders can support, built by identifying and exploring all parties' interests and by assembling a package agreement that satisfies these interests to the greatest extent possible.

If there are issues the Stakeholders cannot resolve through consensus decision making, the facilitators, in consultation with the group, will develop a report summarizing the issue and fully document the remaining differences, including the specific concerns of individual Stakeholders. The group will work to build consensus on the specific language of the report. The DEP will use this summary as they advance ozone attainment in line with their mandates and air quality responsibilities.

CONSTITUENTS

Informed constituencies will enhance the prospects for approval of the recommendations. The participants who represent agencies or constituencies will inform their constituents about the issues under discussion. They will represent the interests of their constituent group and bring their constituents' concerns and ideas to the negotiation. Members of the task force may elect to hold regular meetings with their constituent group (a formal caucus), to provide copies of work session summaries to their constituents and request comments, and to communicate informally with their constituents.

REPRESENTATION

To enhance creativity during meetings, individuals who represent agencies or constituencies are not expected to restrict themselves to the positions held by their agencies or constituencies. The goal of the Stakeholder Group is to have frank and open discussion of the issues in questions and the options to address the issues. Therefore, ideas raised in the process of the dialogue, prior to agreement by the whole group, are for discussion purposes only and should not be construed to reflect the position of a Stakeholder or to prematurely commit the group or any one Stakeholder.

SUPPORT

Participants are welcome to bring staff or members from their organization to support the problem solving process. Participants can defer to those individuals when their expertise is required or when requested by the group. The use of support staff must not disrupt deliberations.

OBSERVERS

Meetings will be open to the public. The group welcomes input from observers; however, in order for the participants to complete their work, discussion and deliberation at work sessions must be focused and manageable. Observers who wish to address the group should contact the facilitators. The group will manage observer participation. The facilitators will provide opportunity for observers to submit written comments at work sessions.

COMMUNICATING WITH THE PUBLIC

Work session summaries will be available to the public upon request. The DEP Newsletter, UPDATE, will list meeting notices and agendas. Information, including meeting summaries, will also be posted on DEP's website at www.dep.state.pa.us.

COMMUNICATING WITH THE MEDIA

Work sessions will be open to the public, including the media. During the sessions, participants should focus their comments on building consensus and searching for solutions, not on influencing the public through the media.

Outside the sessions, each participant is free to speak with the press on behalf of his/her constituency and must make it clear to the press that the comments should not be attributed to the whole group. No participant will speak for the whole group without express authorization by consensus of the group. No participant will characterize the point of view of other representatives. In communicating with the media and the general public, it is important to distinguish preliminary information, concept papers, or proposals from final decisions. Preliminary documents will be marked with "DRAFT" or "FOR DISCUSSION PURPOSES ONLY."

When the group as a whole decides that there is a need to communicate with the press, the members will designate a spokesperson(s) or draft a consensus press release. The group will establish a press relations subcommittee. DEP staff will assist the group to prepare and distribute press releases as requested by the group. Participants can refer members of the press to CDR Associates for questions about the process.

ATTENDANCE

Participating in consensus decision making requires consistent attendance. Stakeholders are not obligated to use the time dedicated to problem solving sessions to backtrack and accommodate those who have not attended a prior meeting. Participants must keep their alternates informed and up to date. Participates will let the facilitators know if unable to attend a meeting. Alternates can participate in decision making.

DISCUSSION GUIDELINES

The following guidelines encourage consensus building. Participants will make their best efforts to follow them, and the facilitators will ensure they are followed.

It is crucial that the meetings run efficiently and that everyone has a chance to be heard and to hear others. Therefore:

- avoid side conversations;
- avoid interruptions;
- be brief; and
- begin and end on time.

It is important to give adequate consideration to all options. Therefore:

- avoid judging ideas prematurely;
- look for the need that gives rise to the idea;
- look for ways to improve proposals;
- try to remain open minded; and
- be firm about your goals but flexible about how to get there,.

Disagreement is inevitable, but must be focused on the issues involved rather than on one another. Therefore:

- show respect to other participants; and
- avoid behavior that is disruptive to the work of the group.

REVISIONS TO OPERATING AGREEMENTS

Any revision to the operating agreements requires the consensus of the group.

END DATE

The participants will develop an overall schedule for the year. In the interest of reducing the number of meetings, we will move items ahead in the schedule whenever possible.

OZONE STAKEHOLDERS

Mark Cibulsky, Cryovac
Reid Clemmer, PP&L
Jeffrey A. Clukey, Citizens Advisory Council
Tom DiLazaro, Pennsylvania DEP Northeast Regional Office
Michael Golembiewski, Berks County Planning Commission
Joseph Hoffman, Berks County Conservancy
Anthony Ippolito, SUNOCO, Inc.
Judith Katz, U.S. EPA
Noel ("Chip") Karasin, League of Women Voters of Berks County
Beth Litvin, League of Women Voters of Berks County
Kerry Lenahan, Lyondell Chemical
Don Johnson, Northampton Generating Company
Harvey Joseph, City of Bethlehem Health Bureau
Roslyn Kahler, Citizens Advisory Council
Thomas B. Lloyd, Lehigh Pocono Committee of Concern (LEPOCO)
Timothy McKenzie, GPU Genco/Sithe Northeast
Mark Messics, Waste Management, Inc.
Tom Morgan, City of Allentown Health Bureau
Dan Nugent, Reading-Lehigh Valley Cement Producers
Theresa Podguski, AAA East Penn
Jason Rash, Clean Air Council
James Rentzheimer, Pennsylvania Automotive Association
Joris Rosse, Saucon Association for a Viable Environment (SAVE)
Jim Runk, Pennsylvania Motor Truck Association
James M. Salvaggio, PA DEP Bureau of Air Quality
Robert J. Schaefer, Associated Petroleum Industries of Pennsylvania
Jerry Schantz, Alliance of Automotive Service Providers of Pennsylvania, Inc.
Steve Schmitt, Coalition for Alternative Transportation (CAT)
Ron Skinner, Air Products and Chemicals, Inc. of Lehigh County
Frank Sparandero, M.D., Sacred Heart Hospital, Allentown
Fritz Shaak, Graphic Arts Association
John R. Williams, American Lung Association of Pennsylvania—Lehigh Valley Region
Michael G. Young, Pennsylvania Coal Association
John Zinkand, Pennsylvania Petroleum Association

FACILITATORS

Mike Hughes
Suzanne Ghais
CDR Associates