

Sather

Low Emissions Vehicle Commission
March 17, 1993 Minutes

Attendees:

Gary Babin, Columbia Gas of Pennsylvania
Peter Bauer, Pennsylvania Automotive Association
Secretary Arthur A. Davis, Pennsylvania Department of
Environmental Resources
Wayne S. Ewing, Associated Petroleum Industries of
Pennsylvania
Richard Flati, Pennsylvania Electric Association
Secretary Andrew T. Greenberg, Pennsylvania Department of
Commerce
Richard W. Hayden, Pennsylvania Environmental Council
Garvin Kissinger, Pennsylvania AAA Federation
Honorable Keith McCall, Pennsylvania House of
Representatives
Mario D. Pirritano, Deputy Secretary, Safety Administration,
Pennsylvania Department of Transportation
Honorable Larry Sather, Pennsylvania House of
Representatives
Secretary Howard Yerusalim, P.E., Pennsylvania Department of
Transportation

Mr. Yerusalim opened the meeting by introducing himself and welcoming all attendees. He then introduced Mr. Pirritano.

Mr. Pirritano introduced Secretary Davis from the Department of Environmental Resources, John Pachuta, Director, Bureau of Motor Vehicles, Department of Transportation, and asked each of the remaining members to introduce themselves.

Mr. Pirritano then explained that those persons who were attending the meeting as an alternate for an absent member would not be permitted to participate in the business of the Commission. However, he asked that all attendees at the meeting introduce themselves.

Mr. Yerusalim took a roll call of members and noted that there was a quorum. He then went on to explain that the Commission had been created in order to make determinations concerning two items; whether the adoption of a Low Emissions Vehicle Program will result in significant air quality improvements; and whether a cost effective reduction in ozone precursors will result from the adoption of a Low Emissions Vehicle Program. He noted that there have been numerous studies done in this area and that the Commission could take these studies into consideration.

Mr. Yerusalim also indicated that, since this was the first meeting of this Commission, he would try to guide the meeting only until a chairman was nominated and elected. He then accepted nominations for Chairman of the Commission.

Nomination of Chairman - Gary Babin nominated Richard Hayden; Richard Flati seconded. Secretary Davis moved to close nominations; all Commission members were in agreement. Mr. Yerusalim called for a roll call vote. Commission members voted unanimously to elect Richard Hayden as Chairman of the Low Emissions Vehicle Commission.

Linda Young discussed the submission of reimbursement requests for travel expenses incurred by Commission members.

Mr. Yerusalim opened a discussion concerning the frequency of Commission meetings. He also added that Representative McCall, who planned to attend the entire meeting, needed to return to session. He gave Mr. Yerusalim his proxy to vote for Mr. Hayden as Chairman of the Commission.

Mr. Ewing suggested that the Commission initially meet every two weeks.

Mr. Hayden stated that he felt that the first business of the Commission should be to gather and distribute information to Commission members. He suggested that the next meeting be held in the second week of April and that informational packages be distributed to members at that

time. The following meeting could then be used for discussion of the information and establishing a direction for the Commission.

Mr. Greenberg suggested that a subcommittee of Legislators or others assigned by Commission members from their respective staffs be formed to gather and evaluate information for the Commission.

Mr. Hayden asked if there were any other ideas concerning the use of subcommittees. Mr. Kissinger suggested that this option be discussed in more detail at the next meeting.

Mr. Yerusolim stated that the current demands placed on the Departments of Environmental Resources, Commerce and Transportation make a large effort on their parts unrealistic. However, he said that he may be able to devote some of Transportation's staff and, particularly, a limited portion of the Department's consultant's efforts to research and fact gathering for the Commission.

Mr. Hayden asked Mr. Michael Walsh to proceed with his overview of low emission vehicles. Mr. Walsh proceeded with his presentation, briefly reviewing each overhead transparency (attached). He also explained that action has been taken in the following states concerning LEV programs:

New York has been challenged in court. The Court ruled against New York; an appeal has been filed.

Maine has a court case pending.

Massachusetts has had no papers filed yet. They have voted to stay with the program.

New Jersey enacted a program in the week preceeding this meeting which will go into effect in 1995. However, due to manufacturing policies concerning vehicle model years, there is some question about the legality of this implementation date.

Virginia has not gone forward at this time; legislation is pending.

Maryland is currently debating the issue.

Texas has decided to wait before attempting such a program.

Mr. Bauer raised the issue of credit and a general discussion ensued regarding the value of mobile sources versus stationary sources, credit involved, strategies for achieving goals, and studies conducted in these areas. Discussion included what credit will be received for

attainment status for adoption of LEV; what strategies could be employed if mobile source controls are not sufficient; and what are the Pennsylvania baseline inventories and how do they relate to what Pennsylvania must do to achieve attainment status. Mr. Hayden felt that more information was needed and discussion on these topics should be postponed until the Commission could get material on where other states are on these issues. He also expressed a desire to look at the cost of controls from the manufacturers' point of view and where this strategy fits in an overall mobile source strategy. It was decided that EPA will be requested to run the Mobile 5.0 model to provide the Commission with information on attainment status.

Mr. Hayden asked for suggestions concerning possible dates for the next Commission meeting. Members agreed upon Wednesday, April 21, 1993 at 1:30 p.m. and decided to try to meet within the Capitol Building.

Mr. Bob Veit introduced himself to the Commission as a representative of the American Automobile Manufacturers Association and offered the Commission the data his organization has on Mobile 5.0. He stated that they've completed a program that he can make available to the Commission. He asked that he be given a contact person so personnel with his association can arrange to supply the Commission with the program to evaluate the benefits of the LEV program in Pennsylvania.

Mr. Ewing mentioned that there are a number of different pollution control strategies available to meet Pennsylvania's emission goals. Currently, the Commission has LEV studies available which were done by other states. However, he felt strongly that the Commission needs to have a Pennsylvania-based study done since there are certain factors that make Pennsylvania unique and are not included in the studies available for consideration. Mr. Hayden agreed that this would be ideal, however, there is no funding to have a Pennsylvania-based study conducted.

Mr. Ewing made a motion to adjourn the meeting, seconded by Mr. Babin. The meeting was adjourned at 3:15 p.m.

Suggested questions for Larry Sather to ask:

of EPA

"*Kelly Bunker*"

1. In order to get credit for the CA LEV program as part of the SIP submission, what kind of inspection and maintenance program will be required?

Answer info: EPA has indicated in conversations and in the backup to mobile5 that a more stringent I&M program will be needed to test whether the CA LEV cars are meeting their emission targets. They have only referred to this as "appropriate" I&M. We believe it will result in more cars failing and a more expensive test in terms of equipment and labor.

2. If CA LEV is a statewide program, won't this I&M program also have to be statewide?

Answer info: In order to judge whether the CA LEV cars are working the way they are supposed to, they will all have to be subject to I&M. This means the program will have to be expended to all counties of the state and there is no legislative authority for DER/DOT to implement a state-wide program in PA.

3. I (Larry) live in an attainment area. We are not one of the counties that will have reformulated fuel. When you estimated the credits for the program, did you take into account that a large part of PA is not in the reformulated program? How well do CA LEV cars perform on non-reformulated (i.e. conventional) fuel?

Answer info: We really don't know the answer to either of these questions and would like to know.

of DER

1. Why does all of the state have to be in the CA LEV program? Couldn't it just be non-attainment areas or Philadelphia.

Answer info: The Clean Air Act (Federal) says that adoption is statewide. We can't see anyway around it if the entire state is part of the Ozone Transport Commission, which PA is.

Low Emissions Vehicle Commission
April 21, 1993 Minutes

Attendees:

Gary Babin, Columbia Gas of Pennsylvania
Peter Bauer, Pennsylvania Automotive Association
Honorable J. Doyle Corman, Senate of Pennsylvania
Secretary Arthur A. Davis, Pennsylvania Department of
Environmental Resources
Wayne S. Ewing, Associated Petroleum Industries of
Pennsylvania
Richard Flati, Pennsylvania Electric Association
Richard W. Hayden, Pennsylvania Environmental Council
Garvin Kissinger, Pennsylvania AAA Federation
Honorable Gerald J. LaValle, Senate of Pennsylvania
Honorable Keith McCall, Pennsylvania House of
Representatives
Honorable Larry Sather, Pennsylvania House of
Representatives

Mr. Hayden opened the meeting by introducing himself and welcoming all attendees.

Mr. Hayden mentioned that several Commission members expressed concern that they may be unable to participate fully in all Commission meetings due to other commitments. He suggested that Commission members designate an alternate to participate in the discussion phase of the meetings when they are unable to attend. However, Commission members will be notified in advance of meetings during which voting issues are expected since only they will be permitted to participate in voting.

Mr. Hayden stated that several Commission members had also expressed concern relating to their expertise in evaluating the technical data presented to the Commission. He said that it was suggested that the Commission seek outside technical assistance in this area. Mr. Sather was then asked to open a discussion of this topic.

Mr. Sather presented a motion (Attachment 1) for consideration and discussion. Obtaining funding from public and private sectors for an independent low emissions vehicle (LEV) study was discussed. Mr. Hayden stated that a Penn State-based study group (Mid-Atlantic Universities Transportation Center) which has done similar study work in the past may be interested in conducting an independent study for the Commission. The cost of such a study was discussed, the time constraints required for study results, coordination between the study group and the Environmental Protection Agency (EPA), and concerns relating to quality and credibility versus the limited monies available were raised. Mr. Flati presented some concerns with the language of the motion and suggested that the motion follow the wording of the statute verbatim. After further discussion regarding the language and intent of the motion, including the impact of pending litigation, the use of the terms California low emissions vehicles and Tier 2 cars, and the possibility of Pennsylvania exceeding Federal standards, Mr. Hayden suggested that the language of the motion be amended. This amendment would require the LEV Commission to arrange for a consultant to study and assist the Commission in its effort to evaluate the impact of a LEV program on Pennsylvania's air pollution control strategy as required by the Federal Clean Air Act. A motion was made to accept this amendment and seconded. The amendment was unanimously accepted by verbal vote.

Mr. Hayden appointed a technical subcommittee to address the issue of retaining and directing a consultant to provide research for the Commission. Mr. Babin, Mr. Ewing, Mr. Flati, and Mr. Bauer will serve on this subcommittee; Mr. Hayden will act as chairman. Mr. Babin suggested that the

consultant be made aware that they are responsible to the Commission, not those providing funding.

Mr. Hayden introduced Ms. Kelly Bunker, the mobile sources expert for the EPA's Region 3 office, who presented information on behalf of EPA. Ms. Bunker's presentation consisted of three issues: the waiver granted to California by EPA; EPA's policy on the use of California reformulated gasoline in LEV programs in other states; and credit attained from LEV by adoption of the standards.

On the topic of waivers granted by EPA, Ms. Bunker stated that Section 209(a) of the Clean Air Act restricts states from implementing their own motor vehicle emission standards. California can implement its own standards, if Federal preemption in Section 209(a) is waived. Section 209(b) allows for this waiver. However, waivers cannot be granted if the state's standards are less protective, the state doesn't need standards to meet its extraordinary air quality problems, and if the state's standards and enforcement are not consistent with Section 202(a) of the Clean Air Act which addresses Federal motor vehicle standards and procedures.

Ms. Bunker added that the California LEV was adopted by the California Air Resources Board (CARB) on September 28, 1990. On October 24, 1991, CARB submitted a request to EPA for Federal preemption. On January 13, 1993, EPA granted this waiver request to allow for the California LEV standards. Section 177 of the Clean Air Act allows other states to adopt California standards if: the state adopts standards which are identical to the California tail pipe emission standards for which a waiver has been granted; both California and any other states adopt the standards at least two years before the first subject model year; and the state does not create a third car. Ms. Bunker mentioned that final LEV regulations have been published by New York, Massachusetts, and Maine, and that legislation has been passed by New Jersey and Maryland. However, both New Jersey and Maryland's laws contain date-specific stipulations that surrounding states must also adopt LEV regulations before they would consider the regulations.

In answer to Mr. Hayden's questions regarding requests by any of the previously discussed states for EPA waiver of Federal preemption, Ms. Bunker stated that no waiver is necessary since EPA has no approval role in the adoption of LEV regulations by any state other than California. No other review process by EPA exists to ensure conformity with California LEV requirements, however, EPA will review any state implementation plan (SIP) provisions submitted by other states.

Discussion ensued relating to lawsuits which have been brought in New York, Maine, and Massachusetts as a result of their LEV programs. These suits, filed on July 9, 1992, March 1, 1993, and May 9, 1993, respectively, contain identical complaint elements. These elements are fuels requirements, lead time (i.e., when regulations would be implemented) and whether the use of a zero emission vehicle (ZEV) would constitute the creation of a third car since manufacturers claim that design changes would be necessary to create a ZEV which would operate in the colder climate of these Northeastern states. A decision has been rendered in the New York case, however, the State has requested a re-hearing on this matter and is awaiting a decision regarding this request. Although EPA has not been involved in any of these cases, Ms. Bunker stated that the Governor of New York has contacted EPA regarding the possibility of EPA providing testimony if a subsequent hearing is granted. At this time, EPA has made no decision concerning this request. Ms. Bunker also mentioned that if the New York case is not overturned, all states adopting LEV programs must also require conformance to the California LEV standards.

Regarding the California reformulated fuel policy, Ms. Bunker said that EPA's preliminary decision is that states are not required to adopt the California fuel requirements unless other fuels would damage the emission control system of a vehicle. There are presently no known test results or other data concerning allegations of damage to vehicles which do not use California fuel.

Mr. Kissinger asked if Pennsylvania would be eligible for credit for mobile or stationary sources if the California LEV standards are adopted while the California fuel is not required. Ms. Bunker stated that she was unable to answer this question specifically, however, control measures applied in an attainment area of a statewide program cannot be applied to the 15% reduction requirements in non-attainment areas.

Mr. Babin questioned if Pennsylvania's designation as part of the Ozone Transport Commission (OTC) has any bearing on the treatment of credits, since this designation categorizes Pennsylvania as a moderate non-attainment area with regard to off sets. Mr. Hayden explained that the Federal act treats issues of attainment across the region and appears to give credit to participating states in the Ozone Transport Region (OTR) for certain control devices. He felt that this also raises the question of whether Pennsylvania should get some type of credit from EPA if a statewide program is implemented. Ms. Bunker stated that she was not prepared to answer these questions at the present time, but that she would research the issue and provide an answer to the Commission.

Mr. Ewing asked what kind of benefits Pennsylvania can anticipate receiving from a LEV program and when these benefits can be expected to be realized. Ms. Bunker said that she was unable to address this issue at this time. EPA is presently briefing a new administrator on the emission reductions and benefits which could be achieved from a LEV program, however, this information has not been quality assured and, therefore, is not available for release at this time.

Mr. Kissinger asked if there is any impact on the emissions produced at the tail pipe of a California LEV vehicle if it is operated with a non-reformulated fuel. Ms. Bunker stated there should be no impact, however, she could not state this with certainty.

Mr. Sather questioned if there is any data relating to how well the California reformulated fuel works. Ms. Bunker had no data on this topic, however, Mr. Hayden mentioned that, in the future, he would like to have someone from the Automobile Manufacturers Association and a Washington-based air pollution control trade association representative testify before the Commission. He felt that many of these types of questions could be answered at that time.

Mr. Babin asked if the Mobile 5.0 model accounts for the use of non-California fuel in the LEV. Ms. Bunker stated that the Mobile 5.0 model does account for Federal reformulated gasoline, which differs from the California fuel. This should show differences between a LEV operated on Federal fuel and one operated on California fuel.

Ms. Bunker stated that volatile organic compounds (VOC) and oxides of nitrogen (NOx) emissions both contribute to the formation of ozone. The major contributors of NOx are motor vehicles and power plants. Control measures for air emissions of NOx are now being recognized as necessary since these emissions are an important factor in the formation of ozone in the northeast, as well as nitrogen loading in the Chesapeake Bay. A preliminary analysis by EPA indicates that implementation of LEV standards can reduce NOx emissions from motor vehicles. EPA would support the use of LEV standards to reduce NOx emissions. EPA's preliminary analysis also shows that NOx and VOC emission reductions which can be obtained should begin to accrue by 2005. The program may be useful for obtaining emission reductions for severe areas, like Philadelphia, as well as being very useful for long-term maintenance of air quality. Ms. Bunker closed her presentation by indicating that implementation of no one control measure will bring areas into attainment. Many control measures, including LEV, may be needed to bring areas into attainment and maintain air quality standards.

Mr. Babin questioned the effect on Pennsylvania's attainment status if attainment deadlines are not met, i.e., how is Pennsylvania (currently moderate non-attainment) affected if Philadelphia (currently severe non-attainment) fails to meet its compliance deadlines. Ms. Bunker said that if a moderate area did not meet a compliance deadline, that area would be changed to serious. However, a severe area could not be advanced to a higher classification. Mr. Babin also questioned the effect of failure to meet attainment deadlines on off sets for stationary sources. Ms. Bunker stated that she was not prepared to answer questions relating to off sets.

Senator Corman stated that it was his understanding that the Mobile 5.0 model factors in different variables for emission testing. He asked if there was a different emission test required for a California-type emission vehicle than the test required for a vehicle which would be tested under the enhanced emission program Pennsylvania is currently planning. Ms. Bunker said that emissions increase as vehicles are driven, as opposed to a newly manufactured vehicle, which meets standards. For this reason, a deterioration rate is factored into the Mobile 5A model. The California Air Resources Board (CARB) has reported that the California LEV cars have a lower deterioration rate than Federal cars, however, they have no data to support this claim. In order to address this problem in Mobile 5A, enhanced I/M (EPA model) or Max I/M (appropriate I/M model) may be designated. Max I/M is much like EPA's enhanced I/M, except that it applies much more stringent cut points (minimum requirements) to the vehicle. If the Max I/M were applied to the LEV model, this would ensure that LEV standards in the future would meet the deterioration rate claimed by CARB. If tested under the EPA enhanced I/M, the deterioration rate applied would be the same as that applied to the rest of the Federal fleet.

In further discussion, Ms. Bunker stated that implementing the Max I/M without implementing a LEV program would cause many vehicles to fail due to the stringent cut points. However, a dual program could be implemented to gain some benefits from the Max I/M requirements by requiring conformance to the Max I/M requirements for all LEV vehicles, and requiring conformance with the less stringent EPA enhanced I/M for all non-LEV vehicles.

Mr. Ewing questioned the use of Federal fuel versus California severely reformulated fuel and the cost effectiveness of each. Mr. Hayden stated that there is already a statutory prohibition against Pennsylvania adopting the California fuel, however, the outcome of pending court cases could effect the adoption of a LEV program without a California fuel.

Mr. Bauer questioned EPA's position on adoption of all or part of the California program, i.e., can Pennsylvania adopt only portions of the California program without adopting others, such as ultra-LEV's and ZEV's? Ms. Bunker said Pennsylvania would have to adopt the non-methane organic gas (NMOG) average emission standards, which would include ZEV's, however, the minimum sales requirements would not need to be adopted. Mr. Bauer also asked if Pennsylvania could adopt a Federal car and create voluntary incentive programs (such as tax credits) to encourage vehicle owners to use alternate fuel sources (i.e., natural gas) if California standards appear to be undesirable. Ms. Bunker said that the Clean Air Act requires fleets of 10 or more vehicles to meet the Clean Fuel Fleet requirements that EPA is in the process of promulgating. There is also a similar pilot program which is designed for privately owned vehicles.

Mr. Hayden introduced Wick Havens, DER's acting chief of the Division of Air Resource Management. Mr. Havens distributed and reviewed copies of his presentation material relating to low emission attainment and maintenance of ozone health standards in Pennsylvania (Attachment 2) and a copy of DER's regulatory status report relating to implementation of the Clean Air Act requirements for ground level ozone (Attachment 3).

Mr. Hayden asked if Mr. Havens could give the Commission information relating to the relationship of Pennsylvania's requirements as a participant in the OTR; specifically, whether there are obligations separate from those of the OTR with which Pennsylvania must comply. Mr. Havens stated that all states are responsible for the burden of attainment throughout the Northeastern United States. The OTR's charge is to look at the worst non-attainment situations and determine if individual reductions are adequate to attain air quality standards in the future. It is expected that there will still be a number of non-attainment areas throughout the Northeastern United States by 2005. At that time, the OTC will need to determine what strategies are needed to bring about attainment and may make recommendations to EPA, who can impose these recommended requirements on the individual states.

Mr. Babin asked if there was any prescribed 'bumping up' of attainment status within the current requirements. Mr. Havens stated that there are such provisions. Marginal non-attainment areas which do not achieve attainment would be bumped up to moderate non-attainment and would incur the requirements of that status. Moderate non-attainment areas which do not achieve attainment in 1996 would be bumped up to serious non-attainment areas. However, severe non-attainment areas, such as Philadelphia, cannot be bumped up to extreme non-attainment status.

Ms. Cowan (for Secretary Davis) asked Mr. Havens to discuss allegations that old data has been used to designate Philadelphia as a severe non-attainment area. Mr. Havens said that the Clean Air Act of 1990 supported the old non-attainment designations and created new ones based on monitored ozone values throughout the United States for 1987, 1988, and 1989. In addition, the fourth highest pollutant level value observed in the metropolitan statistical area (MSA) was used to determine the level of non-attainment. It would be inappropriate to reclassify Philadelphia to a moderate non-attainment at this time since the original classification was made during a period of worst-case meteorological conditions. In addition, the severity of non-attainment status is used as a measure of how far the area must go to achieve attainment, therefore, periodic revisions of non-attainment levels are not permitted.

Mr. Ewing asked what Mr. Havens felt would be the result if extreme meteorological years, such as 1987 and 1988, were not factored into the non-attainment determinations. Mr. Havens said that it would be likely that Philadelphia would be the only non-attainment area in Pennsylvania if data from 1990, 1991, and 1992 were used. However, EPA would not permit this since subsequent extreme meteorological years would severely affect the maintenance of attainment status. Further, EPA looked at all mandatory strategies for achieving air quality and projected the attainment status of the region in 2005. In doing this, EPA also used the worst-case meteorological scenario to determine which areas are unlikely to achieve attainment by that time.

Senator Corman asked if there was an appeal process for review of non-attainment classifications. Mr. Havens stated that states had 45 days after the passage of the Clean Air Act in which to appeal. He reported that Governor Casey and Secretary Davis asked EPA to reclassify Philadelphia's non-attainment status from severe to serious and to reclassify Reading's status from moderate to marginal. EPA responded in February, 1991, that their data indicated that the classifications were appropriate and would not be changed.

Mr. Babin asked if there is a request before EPA at this time to revise the present ozone ppm levels from the current standard of .12 to .08. Mr. Havens responded that, in the past, the standard was .08, however, this was changed to .12 during the Carter administration. There are currently several suits requesting that the standard be changed back to .08. To date, the general response to these requests has been that the .12 standard should not be revised until it has been achieved by areas which are currently in a non-attainment status. There are presently 45 counties within Pennsylvania which have not achieved attainment.

Mr. Flati asked if Mr. Havens knew what the proportion of NOx emissions will be for vehicles after the mandated reasonable available control technology (RACT) regulations are applied to stationary sources. Mr. Havens said that this information was expected within the next month, however, he felt that the EPA Mobile 5A model could delay this information another month.

Mr. Hayden asked if separate air modeling has been done. Mr. Havens stated that the data he was presenting to the Commission today was based on the Mobile 4.1 model and that attempts are being made to get Mobile 5A running. However, preliminary work has been done in Mobile 5.0 which indicates that it will show an increase in emissions. DER is currently working with PennDOT to recalculate those emissions for the base year. He also expressed DER's desire to get projections for 1996 and, eventually, projections for 2005. Mr. Flati asked if this type of data would be valuable to the Commission when making an economic evaluation of the mobile source limitations versus stationary source limitations. Mr. Havens responded by offering some data relating to the Mid-Atlantic Regional Air Management Association (MARAMA) Study and the OTC.

Mr. Jay Abom (for Senator Corman) mentioned that Ms. Bunker's testimony indicated EPA's recognition of the California LEV program as an effective strategy for achieving air quality. He questioned if any other strategies are being considered to reach Pennsylvania's reduction goals without a LEV program as a factor. Mr. Havens stated that this type of consideration depends on where NOx emissions are located. VOC emissions seem to have an effect throughout an area, whereas NOx emissions tend to be localized. Much of the NOx emissions in Pennsylvania are concentrated in rural areas with power plants as their source, although they do not appear to be having a large effect on local concentration. Mr. Hayden asked how stack heights affected these emissions. Mr. Havens said this is difficult to determine since the model takes approximately one week to run and is not ideally designed for making this type of determination. However, the model does indicate that the **impact** of NOx locally assists in the formation of ozone.

Mr. Ewing questioned the lack of attention given to the 48% of NOx emissions which are produced by heavy-duty diesel emissions. Mr. Havens said that although Mobile 4.0 didn't indicate this level, Mobile 4.1 did indicate that heavy-duty diesel emissions contributed significantly to NOx levels. However, Mr. Havens further stated that he is waiting for results from Mobile 5A to ensure that these figures are reliable. At that point, a determination can be made regarding the significance of these NOx emissions and the appropriate measures necessary to control them. There are

Federal requirements relating to these diesel emissions which will go into effect in 1998. These requirements may be helpful for maintaining attainment, but will probably not be significant in achieving attainment.

Mr. Ewing also questioned the status of the proposed reduction of the gas volatility levels to 7.8 pounds as recommended by the Governor. These levels were previously reduced from 9 pounds to 8.1 pounds. Mr. Havens said that Pennsylvania has been included in the Federal reformulated fuel program for 1996. This will be one of the major strategies used to achieve the required 15% reductions in Pittsburgh, Reading, and Philadelphia. Although there are currently no provisions for imposing these requirements in attainment and rural non-attainment areas, the OTR has a resolution pending which would instruct EPA to mandate this. However, it will be extremely difficult for any petroleum marketing company to start delivering two Reid vapor pressure (RVP) fuels to different areas.

Mr. Hayden questioned if use of the Philadelphia region as a basis for decisions related to all of Pennsylvania is justifiable. He asked if sanctions were to be imposed in a non-attainment region, would these same sanctions also be imposed on Pennsylvania overall. Mr. Havens stated that EPA would normally focus sanctions on the non-attainment area only, not statewide. If Pennsylvania does not adopt the NOx RACT regulations that have statewide applicability, sanctions could then be applied statewide.

During further discussion of the use of a LEV control strategy as part of a statewide control strategy, Mr. Havens stated that a LEV program in Pennsylvania would have two components. First, it would help Philadelphia achieve the required 3% reductions, and second, it would benefit the 45 counties that need attainment maintenance plans. This would be beneficial in ensuring future attainment maintenance. However, imposition of the mandated control strategies on marginal and moderate attainment areas would not be sufficient for a demonstration of air quality maintenance without implementation of a LEV program. DER and EPA have been researching control measures other than a LEV program, however, at this time there has been little progress in this area.

Mr. Abom asked if Pennsylvania is required to implement the LEV program statewide. Mr. Havens said that it is possible to implement a regional LEV program, however, credit would probably be reduced since non-LEV vehicles would be operating in LEV-affected areas. Ms. Cowan asked Mr. Havens to list some of the strategies, other than a LEV program, which are available for review in order to achieve attainment. Mr. Havens stated that some counties may not be required to do anything to maintain attainment status due to

an absence of economic development or population growth. Other control measures could include regulations regarding lawn mower emissions and consumer and commercial solvent emissions, imposition of vehicle or road user taxes, or enhancement of existing mass transit systems. Mr. Havens added that the advantage of a LEV program is that emission levels can be lowered without restricting mobility.

Mr. Babin questioned the need to focus on stationary sources when mobile source reductions of NOx emissions are not being achieved in a moderate non-attainment area. Mr. Havens responded that if the stationary point sources of a non-attainment area produced a significant amount of NOx emissions, then it would be appropriate to focus control measures in these areas.

Mr. Ewing asked if there are any credits for fleet turnover. Mr. Havens stated that fleet turnover credits are incorporated into the Mobile model.

Mr. Hayden asked if an analysis has been done relating to the phase-in of Tier 1 vehicles versus LEV vehicles. Mr. Havens stated that DER has looked at Pittsburgh area reductions which could be gained in 1996 from the Tier 1 car. However, this data has not been distributed since it is expected to change. Further, Mr. Havens stated that it would be unfair to compare Tier 1 vehicles to LEV vehicles since there would not be enough Tier 1 cars in operation by 1996 to make a significant difference. In answer to Mr. Ewing's questions regarding projections for 1995 or 1996, Mr. Havens responded that one of the most effective factors about implementing a LEV program is that, if it is started early in the air quality improvement process, there will be sufficient time for results to become apparent. However, if such a program is not implemented in the near future, benefits will not be realized within the required time frames and industrial emission reductions would be the only feasible alternative.

Ms. Cowan asked if more stringent stationary source regulations would be necessary in 1995 or 1996 if Pennsylvania does not adopt a LEV program. Mr. Havens responded that this would not become necessary until 2005. A LEV program would need to be focused upon in non-attainment areas for maintenance purposes. In addition, vehicle manufacturers will require at least 2 years to implement requirements, therefore, sales trends will also affect the length of this transition period.

Mr. Babin asked Mr. Havens to discuss long-term economic impacts as they relate to the balance between mobile and stationary source requirements. Mr. Havens stated that if Pennsylvania fails to stay within the required maintenance levels, Pennsylvania will be required to impose 'quick fix'

measures. This type of remedy could produce a number of economic impacts.

In answer to Mr. Kissinger's question regarding future changes to California standards, Mr. Havens stated that if California changes their LEV requirements, all states which adopt the California standards must also make identical changes. Mr. Kissinger also asked Mr. Havens to discuss any advantages to adopting a LEV program on a regional basis, rather than statewide. Mr. Havens responded that, although Pennsylvania is not required to implement programs on a statewide basis, implementation in selected areas only would be difficult.

Mr. Hayden thanked Mr. Havens for his presentation and requested that, within the next month or so, DER take the data relating to control strategies for ozone and put it in chart form.

Mr. Abom expressed his opinion that it may not be necessary to become more restrictive on stationary source emissions if stringent reductions in mobile sources are not required. He felt that PennDOT could revise the provisions of the current Emission Inspection Program to help achieve Pennsylvania's air quality goals. He also stated his belief that the Commission needs to be made aware of every option available for consideration, even those beyond a LEV program. Mr. Havens stated that one of the reasons he included updated material in his presentation material was to show some of the options available to the Commission. However, since this data changes continuously, accurate projections are not feasible. The MARAMA Study attempted to bracket the improvements that could be realized through a LEV program and two very broad scenarios resulted. Therefore, due to the wide range of uncertain factors, projecting future results will probably not be achieved with any degree of accuracy.

Mr. Hayden suggested that the Commission look at the current SIP provisions and determine the type of ozone-related credits which can be achieved. He mentioned that EPA has produced some documents on the cost-effectiveness of some control devices and suggested that the Commission review and react to this data.

The next meeting was scheduled for May 12, 1993 at 1:30 p.m., in Room 8E-A, East Wing, Main Capitol.

Mr. Hayden announced that subsequent meetings will be spent reviewing information submitted to the Commission. He stated that the Manufacturers of Emissions Controls Association, the Chesapeake Bay Commission and the Manufacturers Association will probably be contacted to arrange future presentations by their organizations, as well

as others. Mr. Ewing suggested a presentation by the Petroleum Institute. Mr. Hayden concurred and stated that he would also like to hear from the Electric Association about the commercial viability of electric vehicles.

The meeting was adjourned at 4:10 p.m.

PROPOSED SCOPE OF WORK

INDEPENDENT STUDY FOR PENNSYLVANIA LOW EMISSION VEHICLE COMMISSION

1.0 INTRODUCTION

The Pennsylvania Low Emission Vehicle Act 166 of 1992 established a thirteen member Commission to study the emission reductions and cost-effectiveness of adopting the California Low Emission Vehicle (LEV) Program. The Commission must submit a completed study to the Governor and General Assembly by August 13, 1993. The content of the study has been specially defined by this legislation and shall address the following:

- (1) whether adoption of the low emissions vehicle program will result in significant net air quality improvements, using appropriate air quality modeling analysis and considering both volatile organic compound (VOC) and oxides of nitrogen (NO_x) emissions and their impact on ambient ozone levels; and
- (2) whether adoption of the low emissions vehicle program will result in a more cost-effective reduction in ozone precursors than other alternative control strategies for mobile and stationary sources to achieve and maintain the NAAQS established by the Clean Air Act, including the low emissions vehicle program's impact on economic development, future economic expansion, benefits to public health, welfare and environment and the fiscal impact on the consumer.

To assist the Commission in preparing the study within the applicable time constraints, a consultant will be retained to help determine the emissions reductions, costs, and cost-effectiveness of various control measures that could be implemented.

2.0 BACKGROUND

Several areas of Pennsylvania exceed the National Ambient Air Quality Standard (NAAQS) for ozone. The Clean Air Act Amendment (CAAA) created a classification system of ozone nonattainment areas depending on the severity of the ozone levels. Attachment 1 shows these classifications for Pennsylvania and years by which the standard must be attained. Some Pennsylvania counties are classified as nonattainment but do not have air quality monitoring but are adjacent to areas where violations of the standards have been measured. They are indicated in Attachment 1 as NA for nonattainment.

The CAAA also mandates specific control measures for the different classifications of ozone nonattainment (Attachment 2). Pennsylvania contains ozone nonattainment areas ranging from marginal (e.g., Allentown, Harrisburg and Johnstown areas, to severe (the five county Philadelphia area)). Therefore, the different regions of the state will be subject to differing amounts of mandated controls. The Pennsylvania Department of Environmental Resources (DER) is the lead agency responsible for implementing the provisions of the CAAA. Two major local air pollution control agencies also exist in Pennsylvania. They are the Allegheny County Health Department's Bureau of Air Pollution Control and the Philadelphia County Health Department's Air Management Services. Both are local agencies approved by the DER and adopt and enforce their own local regulations. The major stipulation is that their programs must be at least as stringent as the state and federal programs. While DER cooperates closely with them, it does not provide direct supervision of their programs. However, the state does have oversight authority under the state Air Pollution Control Act.

In addition, there are region-wide violations of the ozone standard throughout the entire Northeastern United States. The CAAA addresses this problem of regional ozone nonattainment through the formation of the Ozone Transport Region (OTR). The OTR is composed of Pennsylvania, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, New Hampshire, Vermont, Massachusetts, Maine, Northern Virginia and Washington, D.C. Within the OTR, certain control measure strategies may be required to address the regional ozone problem.

3.0 PROPOSED STUDY/ANALYSIS REQUIRED BY THE CONSULTANT

In order to assist the Commission in preparing a study which meets the requirements of the Pennsylvania Low Emission Vehicle Act 166 of 1992, a consultant will be retained. The consultant will investigate the emission reductions resulting from the mandatory and optional control measures for mobile, point and area sources being considered by the State of Pennsylvania. The consultant will estimate the VOC and NOx emission reductions resulting from the LEV program, Tier I vehicle, Tier II vehicle, enhanced vehicle I/M, Stage II, clean fuel fleet program, reformulated gasoline, vehicle scrappage programs, employee trip reduction programs and transportation control measures. In addition, VOC and NOx emission reductions from point and area sources must also be determined. The costs of each of these control measures will be determined and a cost per ton value for the resulting VOC and NOx emission reductions calculated. The cost analysis will be done for all of the nonattainment areas as well as the State as a whole.

The analysis will first determine the emission reductions resulting from those measures required by the CAAA and the Pennsylvania Air Pollution Control Act (PAPCA). These estimates will serve as the baseline for the cost-effectiveness evaluation performed later. Then emission reductions will be estimated for optional control measures, including the LEV program. Mobile source emission reduction estimates will be based upon the latest version of EPA's MOBILE5A model, modified as necessary for each mobile source control strategy. Next the analysis will evaluate the prospects for each nonattainment area meeting their respective reasonable further progress (RFP) and attainment deadlines. The analysis will first consider mandated controls for mobile, point, and area sources in each region, based on the SIP inventory. Second, the analysis will estimate the incremental impact of the optional mobile, point and area source controls in light of the deadlines. Finally, costs will be estimated for all mobile, point and area source control options. In this way an incremental cost-effectiveness analysis can be performed to determine the most cost-effective combination of control strategies for the State as a whole, given the constraints of the attainment deadlines.

4.0 PROPOSED OUTLINE FOR THE ANALYSIS BY TASK

I. ATTAINMENT OF THE NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE

- A. Review SIP emission inventory and determine contributions from mobile, point, area, and biogenic sources, as well as transport from other regions. (The source category mix will be a determining factor in developing the optimum combination of control strategies.)
- B. Characterize mobile source requirements of the CAAA as they pertain to the nonattainment areas. Characterize additional requirements specified by the PAPCA for mobile sources. These requirements will include:
 - 1. Federal Tier I emission standards;
 - 2. Federal Tier II emission standards;
 - 3. Future evaporative emission control measures;
 - 4. Enhanced I/M programs;
 - 5. Stage II vapor recovery;
 - 6. Onboard vapor recovery system;
 - 7. Federal reformulated gasoline (RFG) (Philadelphia only);
 - 8. Clean fuel fleet vehicle programs (Philadelphia only);

9. Transportation control measures (Philadelphia only).
- C. Characterize additional mobile source control options available in the nonattainment areas, including:
 1. California LEV program;
 2. Federal reformulated gasoline (RFG) (opt-in for all nonattainment areas);
 3. Old vehicle scrap programs;
 4. Expansion of clean fuel fleet program to moderate and marginal regions.
 - D. Characterize point and area source requirements of the CAAA as they pertain to the nonattainment areas. Characterize additional requirements specified by the PAPCA and the OTR for point and area sources.
 - E. Characterize additional optional point and area control measures available in the nonattainment areas.

II. VEHICLE EMISSION FACTORS -- MOBILE5A BASIS

- A. Estimate emission factors for federal baseline -- Tier I emission factors, and enhanced evaporative emission controls.
- B. Estimate emission factors for Tier II vehicles and LEVs.
- C. Estimate emission reductions resulting from Stage II controls.
- D. Estimate emission reductions from onboard vapor recovery system.
- E. Estimate the effect of Phase I and II RFG upon emission factors.
- F. Estimate the effect of enhanced I/M upon emission factors. Consider two I/M scenarios:
 1. Enhanced I/M -- meeting the minimum requirements of EPA's proposed rule;
 2. Maximum I/M -- the most stringent I/M program possible, assumed to result in vehicles meeting their emission standards over their useful life.

III. EMISSION REDUCTION ESTIMATES

- A. Consult with PA DOT and PA DER to determine expected rate of increase in VMT for each of the nonattainment areas. Estimate the impact of future TCMs on VMT for the Philadelphia area.
- B. Apply VMT estimates to factors to project total VOC and NOx emission reductions for baseline (mandated) control measures. Consider different implementation timetables from the different measures.
- C. Estimate emission reductions for both Phase I and II RFG.
- D. Estimate emission reductions for vehicle scrappage. Emission reductions from scrap programs will be estimated using EPA's recently released guidance on the subject, and emission test results from previous scrap programs (e.g., the California UNOCAL project).
- E. Estimate emission reductions for clean fuel fleet programs. Conversion and replacement schedules for covered fleet vehicles will correspond to the CAAA requirements. Reductions will be estimated for the Philadelphia area, as required, and for the other nonattainment areas as an optional control measure.
- F. Estimate emission reductions from mandated and optional control measures for point and area sources for each of the nonattainment areas.

IV. RFP AND ATTAINMENT DEMONSTRATIONS

- A. Determine required emission reductions for marginal, moderate, and severe areas, for both VOC and NOx.
- B. Estimate progress toward meeting reduction targets for each area, for the following:
 - 1. Adopting mobile source and refueling controls required by CAAA and PAPCA;
 - 2. Adopting mandated mobile source controls plus expected point and area source controls required by the CAAA;
 - 3. Adopting mandated mobile, point, and area source controls plus the LEV program; and

4. Adopting mandated mobile, point, and area source controls plus combinations of other optional mobile source controls.

V. COSTS AND COSTS-EFFECTIVENESS OF MOBILE, POINT AND AREA SOURCE CONTROL OPTIONS

- A. Estimate costs associated with the adoption of a state-wide LEV program. Consult with automobile manufacturers, EPA and other sources to estimate costs for research and development, materials, labor, investment and engineering markup, and fuel economy penalty. Specifically, costs of electrically-heated catalysts (EHCs) will be evaluated for the alternative types of engine modifications needed to meet the LEV emission standards. The percentage of vehicles requiring EHCs will also be estimated. Low, medium, and high cost estimates will be developed.
- B. Evaluate the feasibility of adopting an LEV program on a regional basis, solely for the Philadelphia area. Consult with EPA, automakers, and PA DOT concerning economies of scale, administration, registration, I/M, and enforcement issues.
- C. Estimate the costs associated with the adoption of federal Tier II exhaust emission standards.
- D. Estimate the costs associated with implementing the two different I/M scenarios (enhanced and maximum). Consider the presence of the current basic program already in place. Include costs for land procurement/site modifications, labor, operation and maintenance, and equipment costs. Evaluate costs for both State and contractor-run operations.
- E. Evaluate costs for federal RFG, for both Phase I and II.
- F. Estimate costs and benefits from adoption of clean fuel fleet program. Evaluate potential fuel savings as a function of VMT. Estimate conversion costs for both vehicles and refueling facilities. Determine costs for the Philadelphia area as well as the other nonattainment areas.

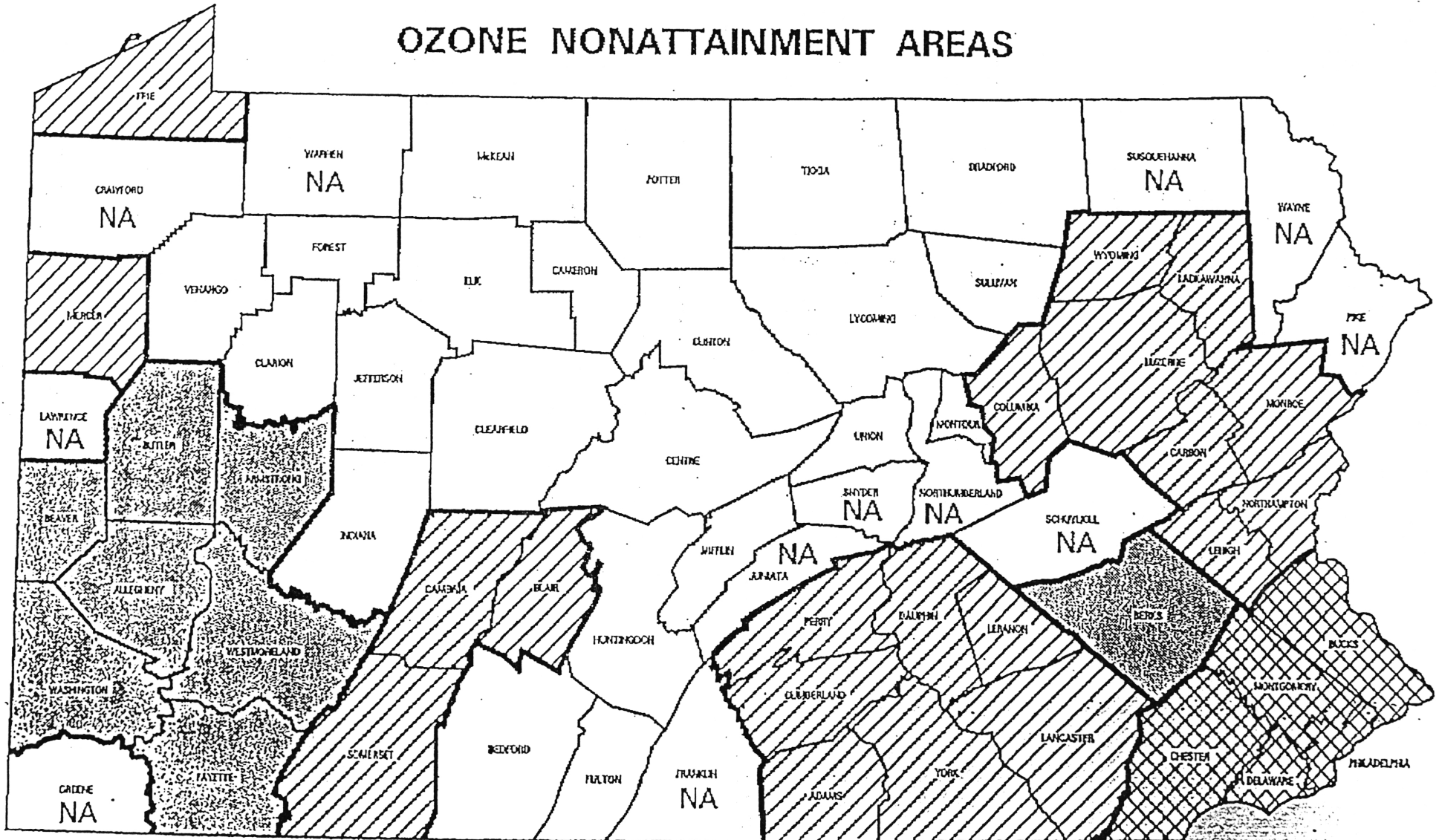
- G. Estimate the costs associated with a vehicle scrappage program. Costs include vehicle procurement, replacement vehicle, and program administration. A benefit may result from fuel savings (older vehicles typically have poor mileage) and from replacement vehicle liquidation value.
- H. Estimate the cost of implementing control measures for point and area sources as mandated in the CAAA as well as other optional control measures that are available.
- I. Estimate cost-effectiveness, in dollars per ton of emission reduction, for each of the above control strategies. Employ a cash-flow model to estimate the net present value of costs (and benefits, if applicable) for each program option. Determine the appropriate discount rate for the emission reduction estimates, and calculate cost-effectiveness values. Values will be calculated for each program option for the nonattainment areas, and the State as a whole.

5.0 TIME SCHEDULE AND OTHER REQUIREMENTS

The consultant will be required to attend an initial meeting with the Commission Chairman to discuss the details of the analysis; this meeting would take place in Harrisburg, Pennsylvania. The consultant will be required to submit status reports to the Commission Chairman on a semimonthly basis. This semimonthly update will be due no later than 2 days before a scheduled LEV Commission meeting. A formal presentation of the analysis will be given to the Commission upon completion, with possible interim presentations to the Commission as key milestones are met.

A completed analysis is due no later than July _____, 1993.

OZONE NONATTAINMENT AREAS



Attainment Deadline
(From Enactment)

3 Years

6 Years

15 Years



Nonattainment



Marginal



Moderate



Severe 1

No. of Counties

12

20

8

5

Requirements for Ozone Areas

