

The original documents are located in Box 4, folder “Auto Emissions (6)” of the James M. Cannon Files at the Gerald R. Ford Presidential Library.

Copyright Notice

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material. Gerald Ford donated to the United States of America his copyrights in all of his unpublished writings in National Archives collections. Works prepared by U.S. Government employees as part of their official duties are in the public domain. The copyrights to materials written by other individuals or organizations are presumed to remain with them. If you think any of the information displayed in the PDF is subject to a valid copyright claim, please contact the Gerald R. Ford Presidential Library.

Some items in this folder were not digitized because it contains copyrighted materials. Please contact the Gerald R. Ford Presidential Library for access to these materials.

[July 1975]

Paper -

Pro & con

1) Ask for
full hearing's

2) ~~Bill~~ -



to extend
existing standards
for five years

[July 1975]

Auto Emissions

Panel in House Sets Compromise On Car Exhaust

Bill Postpones Final Limits
For Tail-Pipe Emissions
Until 1980 Model Autos

By a WALL STREET JOURNAL Staff Reporter
WASHINGTON—A House subcommittee
voted to relax federal auto-pollution rules
but not as much as the Ford administration



THE WHITE HOUSE

WASHINGTON

July 1, 1975

MEMORANDUM FOR

MAX FRIEDERSDORF

THROUGH:

JIM CANNON

FROM:

MIKE DUVAL

SUBJECT:

AUTO EMISSIONS



When the President announced his decision on auto emissions on Friday, the White House released three documents:

1. Statement by the President
2. White House Press Office Fact Sheet
3. Energy Resources Council memorandum

The ERC memorandum is an extremely detailed and comprehensive statement of the entire problem. It lays out in detail the trade-offs between environment, energy, economy and health/safety. I think it would be extremely useful to circulate the ERC memorandum on the Hill as widely as possible. I think it is particularly important to distribute it to the Rogers' and Muskie subcommittee members.

If you think this is feasible, I will arrange to have copies prepared so that they can be ready for distribution when Congress returns.

Also, it would be very helpful to have your advice concerning the possibility of holding an additional day of hearings in both the Muskie and Rogers' subcommittees. The factual information we have to support the President's decision is sound, although it is likely to be obscured by the rhetoric of the opponents. I recognize that hearings before these two committees are a risky proposition, but I do think it would be useful for us to present our views and explain the reasons for the President's decision.

May I please have some guidance on the issue of distributing the ERC memorandum and the question of additional hearings? Thanks very much.

*My
Whore?*

THE WHITE HOUSE
WASHINGTON

July 2, 1975

MEMORANDUM FOR: JAMES CANNON

THRU: MAX FRIEDERSDORF *M.C.*
VERN LOEN *VL*

FROM: CHARLES LEPPERT, JR. *Clg.*

SUBJECT: Critique of National Academy of Sciences
Report on Air Quality and Auto Emissions

Attached for your information is a critique of the National Academy of Sciences report on air quality and auto emissions which was sent to me recently.

*OK { Danham
2/ Dwal - 271*



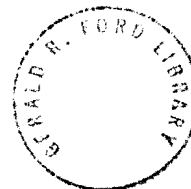
TEXACO
INC.

P. O. BOX 509
BEACON, NEW YORK 12508

W. J. COPPOC
VICE PRESIDENT
ENVIRONMENTAL PROTECTION

June 24, 1975

Dr. Philip Handler
President
National Academy of Science
2101 Constitution Avenue, N.W.
Washington, D.C. 20418



Dear Dr. Handler:

The Environmental Studies Board was given an opportunity on May 22 to review the draft of the "Report on the Conference on Air Quality and Automobile Emissions -- May 5, 1975."

Since the report seemed to me to be quite deficient in the type of balanced, in-depth analysis which should be typical of Academy reports, I presented rather strong criticisms of the report at the Environmental Studies Board Meeting on May 22. Mr. Howard Johnson, Board Chairman, requested that I contact Dr. J. Ross MacDonald, which I was finally able to do on May 27. Dr. MacDonald requested that I make the comments by phone to Mr. Richard A. Carpenter, which I did that same evening.

Since the Environmental Studies Board was given an opportunity to review the report before issuance only as a courtesy, it was kind of these people to give consideration to my comments. However, because many of my colleagues in academia, government, and industry associate the Environmental Studies Board with National Academy of Sciences' activities of this type, I feel impelled to submit to you my dissent from the conclusions in this report.

The National Academies of Science and Engineering and the National Research Council wield great influence with the Congress. They are presumed to be the ultimate scientific authority in the United States. The subject report will be very influential in decisions which will affect tens of thousands of jobs, the lives of millions of people, and literally billions of dollars in investment and operating funds. It should, therefore, be based upon the intense study and careful documentation expected from such prestigious organizations and

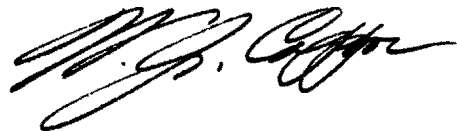
June 24, 1975

fully reflect cogent, relevant, objective, and scholarly analysis. It seems quite incongruous that this report resulted from only a few hours' discussion by a Committee which included not one single person involved directly with the manufacture of engines, automobiles, or the products which lubricate and fuel them. Totally aside from any bias which might have been involved, without knowledgeable representatives from the concerned industries the group did not include the expertise necessary to validate the conclusions it reached.

I suggest you give very careful consideration to withdrawing the report. The National Academies, for which there is no reasonable substitute, must remain above reproach as the well respected and justifiably trusted ultimate authority in the United States on scientific and technological matters.

I am enclosing a detailed critique of this report prepared by those Texaco staff members whom I consider to be unusually qualified in the field of air quality and automobile emissions. This is part of a continuing evaluation program on the part of Texaco in our attempt to supply information which will help the nation pursue positive emission control policies in an energy-efficient manner. I plan to make copies of this critique available to the cognizant congressional committees and to the concerned governmental agencies. We shall be happy to supply additional information if you wish.

Sincerely,



WJC:APBk

cc: Members Environmental Studies Board
Participants - Conference on Air Quality
and Automotive Emissions,
May 5, 1975

Enclosure

OVERVIEW OF TEXACO CRITIQUE

The NRC "Report of the Conference on Air Quality and Automobile Emissions, May 5, 1975, to the Committee on Environmental Decision Making" contains a series of eight conclusions and recommendations dealing with vehicle emission controls and ambient air management. In recognition of Congressional concern with legislative extension and possible revision of the Clean Air Act, the objective of the Conference was to "assess the current situation and identify key issues around which consideration should be focused to place NRC advice before the various governmental decision makers in a useful and timely manner."

In the NRC report there is no evidence whatsoever that the most important body of scientific information relating to this matter has even been reviewed. This information is found in the comprehensive record of the EPA hearing on the suspension of 1977 vehicle emission standards, the Senate Committee on Commerce hearings in March, 1975, and records of the extensive hearings on the Clean Air Act this spring by the Senate Environmental Pollution Subcommittee and the House Committee on Interstate & Foreign Commerce. The overwhelming weight of this testimony is contrary to the conclusions reached in the NRC report.

It is unfortunate that the main thrust of the NRC report is to consider the question of what emission levels are feasible. Public welfare from the standpoint of energy, the economy (jobs, cost of transportation), and other factors affecting personal well-being are designated a secondary role, if considered at all. More appropriately, the general welfare of the people of the nation should be the primary concern, with the role of emission control playing a necessary part in protecting their health. Since vehicle emission control is expensive to society in terms of cost and in terms of energy, emission levels should be regulated on the basis of what is needed, rather than what is attainable regardless of other socioeconomic impacts.

The attached document covers the Texaco critique describing the many, and often flagrant, shortcomings of the NRC report.

* * * * *

Note to overview:

The Texaco critique is directed to the eight conclusions and the support material starting on page 7 of the NRC report. The contents of these pages are included as a part of the critique format. For the sake of completeness, the remaining pages of the NRC report are included at the end of the critique, even though Texaco comments are not offered on these sections.

OF JUNE 5, 1975

NAS CONCLUSION 1.

Emission standards for HC and CO (.41 and 3.4 gm/mi) for the 1978 and subsequent model year light-duty vehicles should be maintained at the current statutory levels. Attaining these levels by 1978 is both feasible and worthwhile. These levels can be achieved while steps are taken to insure against excessive emissions of sulfuric acid and acid sulfates.

The Committee on Motor Vehicle Emissions found that catalyst technology was available to meet the statutory HC and CO (.41 gm/mi and 3.4 gm/mi) standards in 1977 with fuel economy equal to, or better than, equivalent 1970 model cars. In the appendix to EPA's "Decision of the Administrator, In re: Applications for Suspension of 1977 Motor Vehicle Exhaust Emission Standards," it was projected that 90 to 100 percent of production could achieve the statutory HC and CO standards in 1977.

The lifetime cost of achieving this standard with various systems can be determined from Table 1 which compares the cost (in 1974 dollars) of meeting a number of sets of standards with the costs of meeting the 1970 standards. In order to compare costs with the emission control costs associated with 1975 (49 state) catalyst-equipped vehicles, the reader should subtract \$265 from the discounted life total of any given system. The first column of the table lists engine configurations for meeting the indicated HC/CO/NO_x emissions levels. The abbreviations used are as follows: Modif. is a standard internal-combustion engine modified with exhaust gas recirculation, air pump, spark retard, etc.; LBS is a lean-burn system using improved air/fuel mixture preparation; HCAT is a standard engine with HC-CO oxidizing catalyst and other modifications, as necessary; Dual Cat. is a standard engine with both a reducing and an oxidizing catalyst; 3-Way Cat. is a standard engine with combined oxidizing and reducing catalyst, oxygen sensor, and feedback system; CVCC is a pre-chamber, dual-carburetor stratified-charge engine; and CCS is a direct-fuel-injected, stratified-charge engine with an oxidation catalyst. The estimated miles per gallon for each vehicle configuration with equivalent performance is shown in the second column. Column three shows the estimated increase in sticker price for each control option. The differences between ten-year lifetime costs for fuel and maintenance and the differences in total lifetime costs are shown in columns four, five, and six, respectively. Finally, column seven displays the estimated incremental lifetime cost over 1970 vehicles, in which the fuel and maintenance costs have been discounted at 4% per year over the ten-year life of the vehicle. ((Under the 1970 Clean Air Amendments, vehicles are required to be certified only to 50,000 miles. The manufacturers' responsibility to hold fleet emissions in service below the standards (with prescribed maintenance) also extends only to 50,000 miles.)) It should be noted that the figures given in Table 1 are control costs for intermediate six-cylinder vehicles. The determination of total fleet costs depends upon the particular mix of vehicles considered. The precision indicated in Table 1 is far greater than warranted by the many uncertainties in the basic data, but has been preserved to aid the reader in following the analysis. A discussion of the uncertainties is presented in the Report by the Committee on Motor Vehicle Emissions (NAS 1974e:93).

(See pp. 9ff for a discussion of sulfuric acid emissions from the systems listed in Table 1.)

TEXACO CRITIQUE OF CONCLUSION 1

Although attainment of the statutory HC and CO levels by 1978 is technically feasible, the conclusion that they are "worthwhile" is indefensible in light of the overwhelming evidence to the contrary.

Emission control standards must be viewed, not as entities in themselves, but as they interrelate with air quality, energy requirements, and the national economy. All of these factors will be affected by more stringent HC and CO standards, and will in turn affect the overall well-being of the nation.

- (1) Air Quality - The EPA recently concluded (1)(2) that implementing the more stringent statutory standards would produce only minor (2-4%) differences in reductions in ambient oxidant and CO levels, and would result in no change in the number of cities in compliance with Air Quality Standards by 1985 as compared to retention of present emission standards. EPA also recognized (1) that implementation of the statutory standards would require continuation of catalytic exhaust control with its concomitant sulfate problem.

It has further been cited by many sources that Primary Air Quality Standards for oxidant, CO and NO_x can be met in most of the country without resorting to the 1978 statutory standards. Studies by the Ford Motor Company (4) indicate this can be accomplished everywhere except California with standards in gms/mi of HC - 1.4 to 2.1, CO - 12 to 15 and NO_x - 2.7 to 3.9.

A number of others (3)(5)(6) have raised the possibility that increasing the stringency of emission control standards may very well slow down the rate of improving ambient air quality. These standards may even be counterproductive (3)(5)(6) if buyer resistance to new car purchases at higher prices, without tangible benefits, results in older high-emitting cars remaining in service longer.

An NSF (11) sponsored study also concluded that adherence to the original schedule is not essential, and that postponement to 1980 would adequately accomplish desirable national air quality standards while allowing for the orderly development of an effective and reliable control technology for the longer run.

- (2) Energy Requirements - The continuation of catalytic converters and their attendant requirement for unleaded fuel would be among the most wasteful of available options (7)(8) in terms of miles of transportation obtained from a barrel of crude.

Furthermore, auto makers have agreed to President Ford's request for a 40% improvement in average new car fuel economy by 1980, provided that current emission standards are maintained and no new safety or damageability standards are promulgated which impose weight penalties (6).

Recent statements (4)(6)(9)(10) indicating the degree of fuel economy penalty associated with varying emission control levels include:

Emissions-gms/mi			Fuel Economy Penalty - %		
HC	CO	NO _x	AMC	Chrysler	GM
1.5	15	2.0	5-8	7	5-10
0.9	9	3.1	-	-	5-10
0.9	9	2.0	-	12	10
0.41	9	1.5	2.0	16	20-30
0.41	3.4	2.0	-	12-16	10-20
0.41	3.4	0.4	2.5	25-30	-

This negative impact of more stringent standards is already evident (6)(9) in those 1975 models which meet present California standards (10-12% fuel economy penalty) vs. models meeting Federal standards. Further tightening of emission standards will delay or prevent continued development of more energy-efficient power plants and thereby interfere with attempts to conserve the nation's petroleum resources and to meet the goal of greater energy independence for the country.

- (3) National Economy - Since the U.S. automotive industry is a major contributor to the nation's economy, factors adversely affecting it will also have a negative influence on the economy. Declining car sales, due in part to higher sticker prices and poorer fuel economy, have created a more severe unemployment level in this industry (4) as compared to the national average (20% vs. 9%). Even higher prices due to additional equipment required to meet the more restrictive standards, coupled with higher operating and maintenance costs, may cause additional buyer resistance and result in further economic deterioration (4)(5)(6).

In view of the above illustrations, there can be no rational basis for arbitrarily concluding that the imposition of 1978 standards for HC and CO is "worthwhile".

(B) → Comments on sulfate emissions are given under the discussion of Conclusion 4.

(C) → The cost figures used here are misleading in many respects. They represent only imprecise estimates for a six cylinder intermediate size vehicle and as such are not representative of any future total production mix which may occur.

The text indicates the cost of achieving "this standard" (HC 0.41, CO 3.4 gms/mi) can be determined from Table I. This would be difficult, if not impossible, to do since there is no direct comparison with today's standards at a fixed level of NO_x.

Further, the figures deal with technology which has not been developed to commercialization scale and as such, can represent at best only a guess. They are in some cases also outdated. Recent testimony of auto manufacturers stated that the cost of presently unacceptable hardware is running \$300 or more per car (6)(10) and 1978 statutory emission standards have not yet been met.

Additionally, fuel economy predictions shown for increasingly severe standards and used for calculating lifetime

Table 1*

Comparative Emission Control Cost Data for Various Systems and Emission Levels Based on Intermediate Six-Cylinder Vehicles

Emission Level and Vehicle System	Increase in Lifetime Cost (\$)					Discounted Life Total (\$)
	MPG	Sticker Price	Fuel	Maint.	Total	
3.9/33/6						
Base	13.2	0	0	0	0	0
3.0/28/3.1						
Modif.	12.1	51	296	325	672	557
1.5/15/3.1						
Modif.	12.4	78	210	325	613	512
LBS	13.9	110	-164	200	146	134
HCAT	13.5	123	76	100	298	263
0.9/9.0/2.0						
Modif.	12.0	87	325	325	737	617
LBS	13.6	110	-96	200	214	190
HCAT	13.1	167	178	113	458	405
Dual Cat.	13.5	249	75	75	399	371
3-Way Cat.	13.9	326	-11	12	327	326
CVDC	13.3	210	-25	325	510	449
CCS	15.4	230	-661	12	-419	-310
Diesel	16.5	149	-713	-75	-639	-503
0.4/3.4/2.0						
LBS	13.3	120	-25	200	295	259
HCAT	13.1	193	177	113	483	431
Dual Cat.	13.1	249	177	75	501	455
3-Way Cat.	13.6	326	51	12	389	378
CVDC	13.1	210	24	325	559	490
CCS	15.4	230	-661	12	-419	-310
Diesel	16.5	149	-713	-75	-639	-503
0.9/9.0/1.0						
Modif.	10.8	87	734	325	1136	948
HCAT	11.8	167	555	112	834	718
Dual Cat.	13.3	249	125	75	449	413
3-Way Cat.	13.7	326	27	12	365	356
CVDC	13.2	209	-1	200	408	352
CCS	14.8	273	-556	37	-246	-158
Diesel	15.1	167	-477	-25	-335	-250
0.4/3.4/1.0						
Dual Cat.	12.9	249	230	75	554	500
3-Way Cat.	13.5	326	75	12	413	398
CVDC	12.2	209	267	200	676	575
CCS	14.5	273	-499	38	-188	-111
Diesel	15.0	167	-558	-25	-316	-224
0.4/3.4/0.4						
Dual Cat.	12.3	331	401	75	807	724
3-Way Cat.	13.2	377	151	38	566	531
CVDC	10.6	215	799	225	1239	1017
CCS	13.3	273	-291	38	60	94

See text for discussion of all entries in this table.
See Table VI-6 for uncertainties in these numbers.

*This table is adapted from Table VI-4 (NAS 1974e:89).



fuel costs are in conflict with the projections of the car manufacturers (4)(6)(9)(10). These same lifetime fuel costs would have to be further revised if desulfurization of gasoline should be required as advocated under Conclusion 4.

The text itself notes that the precision indicated by the cost figures is far greater than warranted by the many uncertainties in the basic data used to develop them.

REFERENCES

- (1) "Air Quality Impact of Alternative Emission Standards for Light Duty Vehicles" - Environmental Protection Agency - Office of Air and Waste Management - March 4, 1975 - Revised March 12, 1975.
- (2) "Relating Emissions From Motor Vehicles to Air Quality" - Statement presented to the Subcommittee on Environmental Pollution of the Senate Committee on Public Works by D. S. Barth, Acting Deputy Assistant Administrator, Office of Health and Ecological Effects and B. J. Steigerwald, Deputy Assistant Administrator, Office of Air Quality Planning and Standards - May 13, 1975.
- (3) Statement on Auto Emission Standards presented to the Subcommittee on Environmental Pollution of the Senate Committee on Public Works by Dr. Edgar R. Stephens, Professor of Environmental Science, Statewide Air Pollution Research Center, University of California, Riverside, California - May 13, 1975.
- (4) Statement by Leo A. Iacocca, President - Ford Motor Company before the Senate Air and Water Pollution Subcommittee - May 15, 1975.
- (5) Statement of Leonard Woodcock, President - United Automobile, Aerospace and Agricultural Implement Workers of America, UAW, before the Subcommittee on Environmental Pollution, Senate Committee on Public Works - May 15, 1975.
- (6) Statement of General Motors Corporation to the Subcommittee on Environmental Pollution of the Senate Public Works Committee on "Control of Mobile Source Pollution", presented by Elliott M. Estes - President - May 15, 1975.
- (7) "Maximizing Transportation Energy Savings" - Statement from Texaco Inc. to the Subcommittee on Environmental Pollution of the U. S. Senate Committee on Public Works - submitted by Dr. W. J. Coppoc - Vice President - Environmental Protection Department - May 15, 1975.
- (8) "Energy Conservation - Optimization of the Vehicle - Fuel - Refinery System" by W. T. Tierney, E. M. Johnson and N.R. Crawford, Texaco Inc. Presented to the SAE Fuels and Lubricants Meeting, Houston, Texas - June 3, 1975. SAE Paper No. 750673.
- (9) Statement by John J. Ricardo, President, Chrysler Corporation at hearings of the Subcommittee on Environmental Pollution, Senate Committee on Public Works - May 15, 1975.

- (10) A statement of American Motors Corporation to the Subcommittee on Environmental Pollution of the Senate Committee on Public Works, presented by Gerald C. Meyers - Group Vice President - Product - May 15, 1975.
- (11) "The Automobile and The Regulation of Its Impact on the Environment" by Columbia University for the National Science Foundation, June 30, 1974 - PB-237 232.

- (D) → With respect to nitrogen oxide emission control:
- (E) → (a) It is probably feasible with catalyst technology to achieve the statutory emission standard for NO_x (0.4 gm/mi) in 1978. There would be less uncertainty today if there had not been a slackening of effort in pursuing this goal.
- (F) → (b) The costs of achieving 0.4 gm/mi NO_x emissions, estimated by the Committee on Motor Vehicle Emissions in its November 1974 report, are summarized in the discussion below.
- (G) → (c) Adherence to the statutory NO_x standard (0.4 gm/mi in 1978) will discourage the development and use of technologies (e.g., direct-fuel-injected stratified charge, diesel) that could be available for limited production in the early 1980's and which offer benefits such as better fuel economy. These technologies cannot be in mass production by 1978 and, with them, a high degree of NO_x control is inherently difficult. The statutory NO_x standard will necessitate the continued development and use of catalyst technologies which have the potential for meeting this goal by 1978.

The conference participants were not of one mind as to whether the marginal benefits of achieving in 1978 the statutory emission standard (0.4 gm/mi) for NO_x exceed the marginal costs. Some members felt that the known marginal benefits would accrue in only a few areas, so the nationwide standard could be relaxed somewhat. Others felt that, as more was learned about the health and other adverse effects of NO_x and its reaction products, the marginal benefits of attaining the statutory standards might well exceed the marginal costs; also, they believed, the actual costs might be less than estimated because of a smaller fuel economy penalty than was assumed in earlier calculations.

Although catalyst systems that can meet the statutory NO_x standard for 50,000 miles without a change of catalyst have not been demonstrated, the Committee on Motor Vehicle Emissions projected that the statutory emission standard of 0.41 gm/mi HC, 3.4 gm/mi CO, and 0.4 gm/mi NO_x can probably be achieved by 1978. The fuel economy for a three-way catalyst system was estimated to be about 2 percent poorer than that of a 1975 catalyst-equipped car due mostly to the use of exhaust gas recirculation (EGR) (see Table 1). The increased (10-year) lifetime cost was estimated to be \$266 compared to 1975 catalyst-equipped vehicles. As the technology is developed further, the use of EGR may not be required and an increase in fuel economy and decreased operating cost can be expected. Several dual catalyst systems have been demonstrated that are close to meeting the statutory emission standard for 25,000 miles (NAS 1974e:59). Recent results indicate that fuel economy is equivalent to 1975 cars (EPA 1974:7-38).

The additional lifetime cost per vehicle of achieving 0.4 gm/mi NO_x emissions, compared with a relaxed standard of 1.0 gm/mi, was estimated by the Committee on Motor Vehicle Emissions in its 1974 report to be \$133, using the three-way catalyst, the lowest cost system available in 1978 that can meet the standard. This corresponds to an additional annual cost of about \$13.

The additional lifetime cost per vehicle of achieving 0.4 gm/mi NO_x emissions, compared with an even more relaxed standard of 2.0 gm/mi, was estimated to be \$153, using the three-way catalyst system. Comparing the cost of this system to the cost of a lean-burn system, which is the lowest cost system available in 1978 to meet the 2.0 gm/mi standard, the additional lifetime cost was estimated to be \$272 if the cost difference between unleaded and leaded gasoline is 2.0 cents/gal, and \$158 if it is

- (D) → This entire section evades the basic question of "What NO_x standards are necessary and justified?"

The validity of and necessity for establishing a 0.4 gms/mi NO_x emission standard has been seriously questioned on numerous occasions. EPA has publicly stated⁽¹⁾ that measurements from which this proposed standard arose were in error and produced estimates of oxides of nitrogen concentration in the atmosphere higher than actually existed. They have concluded that such stringent control of motor vehicle emissions is not needed and have recommended to Congress a relaxation of this statutory standard.

Mr. Russell E. Train, Administrator of EPA, in his June 3, 1974 testimony before the Subcommittee on Environmental Pollution of the U. S. Senate Committee on Public Works indicated that higher levels could be established with no detriment to the Air Quality Standards in most of the United States.

Professor Edgar R. Stephens of the California Statewide Air Pollution Research Center in testimony before the same Senate Subcommittee on May 13, 1975, reiterated the Center's proposal that NO_x standards for California be set at 1.5-2.0 gms/mi for the period 1977-1979, 1.0-1.5 gms/mi for 1979-1981, and 1.0 gms/mi for 1981-1982. This must be considered significant in view of California being the location of the most severe oxidant pollution problem (derived in part from NO_x) in the country.

These examples are indicative that the need for a 0.4 gm/mi NO_x standard is indefensible regardless of whether or not its attainment is feasible.

- (E) → The statement that "It is probably feasible with catalyst technology to achieve the statutory emission standard for NO_x (0.4 gm/mi) in 1978" is speculative and misleading. It implies that catalyst technology to achieve this goal on a mass production basis is imminent. Yet, recent testimony of U. S. and some foreign car manufacturers⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾ indicated they have been unable to meet all of the requirements of this standard even on a prototype basis.

No recognition is made either of the Selective Enforcement Audit (SEA) now being proposed by EPA which would provide inspection of new cars as they come off the assembly line for compliance. It would have a net effect of forcing manufacturers to set even more stringent NO_x levels in-house to insure that 0.4 gm/mi is not exceeded due to manufacturing variability. Since current prototypes cannot meet durability requirements at the 0.4 gms/mi level, it is questionable if more stringent production control standards could be attained.

No allowance has been made for lead time required to put a new system into production. The introduction of 1978 models requires a readiness to initiate manufacture by mid-1977. This assumes that all development has been completed, operational and durability requirements of the new system have been proven, certification testing has been satisfactorily completed, and new tooling has been installed. The scope of effort in this regard is awesome. Rigorous attention must be given to the total complexities of lead time. Harsh reality dictates that limited prototype demonstration of a concept is not valid evidence that it can be translated into mass production. There must be solid assurance that the integrated vehicle system can be produced in quantities of millions, that the entire vehicle will have adequate durability in the hands of consumers, and that the vehicle will be salable in the market place. At the present stage of incomplete development of catalyst technology for control of oxides of nitrogen emissions, it is doubtful if adequate lead time remains for the introduction of such a system by 1978.

0.5 cents/gal. The actual difference in resource costs (as distinct from difference in price) is believed to be about 0.5 cents/gal.

There are several engine systems now under development that could be in limited production in the 1980's that offer potential savings in fuel economy and operating costs over pre-controlled cars. However, due to the inherent difficulty of NO_x control, which gives rise to doubts that these systems could achieve the 0.4 gm/mi NO_x standard without significant fuel economy penalties, further development of these systems is expected to be inhibited by retention of the 0.4 gm/mi NO_x standard.

The diesel is one example of an engine that offers substantial fuel economy benefits over a conventional internal combustion engine at NO_x standards down to 1.0 gm/mi. However, the diesel is not expected to be able to achieve 0.4 gm/mi NO_x. Another example of a promising technology under development is the direct-fuel-injected, stratified-charge engine. This type of engine has higher HC emissions than the diesel and requires an oxidizing catalyst to achieve 0.41 gm/mi HC. At NO_x standards down to 1.0 gm/mi this engine promises fuel economy better than pre-controlled cars. Although this engine could achieve 0.4 gm/mi NO_x, it would suffer a substantial fuel economy penalty (see Table 1). Both of these examples of technology under development show reduced lifetime operating cost compared to a 1975 catalyst-equipped car. However, even if the automotive industry were committed to producing these systems as quickly as possible, it could be 1979 before they were in limited mass production and 1983 or 1984 before 30 percent of domestic production could be converted to this new technology (NAS 1974e: 117). (See pp. 9ff for a discussion of sulfuric acid emissions from these systems.)

No mention has been made of the possibility that NO_x catalyst control systems may require a low sulfur gasoline for satisfactory operation. Should this be confirmed, this situation would aggravate the already wasteful course of requiring unleaded gasolines for automobiles wherein greater reductions in fuel yields and increases in process energy requirements would be experienced. Further, it would not be possible to assure a widespread supply of low sulfur fuel across the country on an uninterrupted basis by 1978 model year. (7)

In view of the foregoing, the credibility of the statement on feasibility must be questioned as more speculative than factual when all factors are considered.

(F) Issue has already been taken with the cost figures of Table I as noted under the discussion of Conclusion I. However, certain additional comments are worthy of attention here.

The cost figures used are more hypothetical than real as evidenced by most recent testimony from car manufacturers. (4) (5) Saab has indicated its 3-way catalyst prototypes are able to achieve a 1 gm/mi NO_x emission level which would translate to 2 gms/mi in production vehicles. With these unsatisfactory systems estimated cost varies from \$170 to \$270 per vehicle. General Motors noted that if it were required to select a 1978 system at this time, \$150-340 would be added to the cost of 1975 systems using either dual or 3-way catalysts. GM also estimated that based on current catalyst technology, it would be necessary to change catalysts every 5-10,000 miles at a cost exceeding \$60-70 per change.

The above costs are hardware related and do not take into account fuel costs. These, as previously noted, can be expected to increase further if low sulfur fuel is necessary. Also, the requirement for unleaded gasoline will be continued and be most wasteful of energy resources in the transportation sector.

The above factors indicate that more stringent NO_x emission standards should not be adopted precipitously. Rather, additional time should be provided to determine their need and, if justified, to provide for the orderly development and proof-testing of overall cost-effective systems.

(G) The NRC study appropriately concludes that adherence to the statutory 1978 NO_x standard will discourage development and use of alternative technologies that offer other benefits such as fuel economy. However, it does not offer this fact as a strong argument that the emission standards should be relaxed. This position would be understandable if the evidence showed that the statutory standard were required for the protection of health. This is not the case. Although the NRC is divided on this point, it has essentially placed itself in a position of favoring overly restrictive emission controls at the expense of energy saving developments. This is not in the best interests of the people of the nation.

(H) It is not sufficient that a prototype emission control system be close to meeting statutory standards. Prototype systems must be capable of achieving a value sufficiently low to offset variability in performance due to production tolerances as has been discussed previously.

(I) It is true that the direct injection stratified charge (DISC) engine would suffer a severe fuel economy penalty in

achieving 0.4 gms/mi NO_x emissions. However, a standard engine starting from a poorer fuel economy level would also suffer severe degradation. On balance, the DISC engine would be expected to still demonstrate comparatively superior fuel economy to current engines at any stated NO_x control level.

REFERENCES

- (1) Federal Register 15174, Vol. 38, No. 110 - Friday, June 8, 1973.
- (2) A Statement of American Motors Corporation to the Subcommittee on Environmental Pollution of the Senate Committee on Public Works, presented by Gerald C. Meyers, Group Vice President - Product, May 15, 1975.
- (3) Statement by Lee A. Iacocca, President - Ford Motor Company before the Senate Air and Water Pollution Subcommittee, May 15, 1975.
- (4) Statement of General Motors Corporation to the Subcommittee on Environmental Pollution of the Senate Public Works Committee on "Control of Mobile Source Pollution" presented by Elliott M. Estes, President, May 15, 1975.
- (5) Statement of Ralph T. Millett, Saab-Scania, AB - Committee on Public Works, Subcommittee on Environmental Pollution, United States Senate, May 14, 1975.
- (6) Statement of Honda Motor Co., Ltd. before the Subcommittee on Environmental Pollution of the Senate Committee on Public Works, May 14, 1975.
- (7) "Opportunities For Energy Savings In Transportation" A Statement From Texaco Inc. to the Environmental Protection Agency, February 12, 1975.
- (8) "Energy Conservation - Optimization of the Vehicle-Fuel-Refinery System" by W. T. Tierney, E. M. Johnson and N. R. Crawford. SAE Paper No. 750673 presented at the SAE Fuels and Lubricants Meeting, Houston, Texas, June 3, 1975.

NAS CONCLUSION 3.

J → If the statutory emission standard for NO_x (0.4 gm/mi) is relaxed, a two-car strategy should be implemented. This would require vehicles that are registered and/or used in areas with more severe pollution problems to meet more stringent emission standards.

Problems arising from nitrogen oxide emissions are more severe in some parts of the country than in others. It has been suggested that automobiles be required to meet more stringent standards in those parts of the country where conditions warrant strict control. In fact, such a system exists already: current emission standards for California are more stringent than those for the other 49 states. The following excerpts from "The Costs and Benefits of Automobile Emission Control" illustrate the calculation of costs for a more extensive hypothetical two-car strategy:

"It is clear that the auto pollution problem is more severe in some parts of the country than in others. When emission controls become expensive, it may therefore be desirable to adopt more stringent pollution control policies only in serious problem areas so that all motorists need not bear the cost of solving a problem that is important for only a fraction of the population. We consider two alternative plans here. In the first, different new car emission standards are adopted in the two areas of the country. Thirty-seven percent of all new cars sold are required to follow a pattern of standards set forth in scenario I,¹ ending with the 0.4 gm/mi NO_x standard in 1977. The remaining 63 percent follow the standards in effect through 1973, i.e., they need not meet any standards beyond US73" (NAS 1975:100).

"Over the period 1975 through 1985, these savings (of this strategy compared to a uniform new car strategy) would amount to \$40.8 billion, undiscounted, for the two standards considered here, assuming catalyst change savings, and \$25.5 billion ignoring catalyst change savings.... An alternative two-car strategy would be to build the same cars for the more heavily polluted areas but apply different maintenance depending upon the severity of the pollution problem in a given area. Let us assume that in the absence of required maintenance, motorists will not replace catalysts, but that otherwise maintenance costs are equal in both areas...undiscounted total savings for cars built in the 11-year period 1975 through 1985 (using this strategy) are \$15.36 billion" (NAS 1975:102).

(More detailed explanations and additional calculations can be found in the Cost-Benefit Report (NAS 1974d)).

¹Scenario I refers to meeting standards of (.41/3.4/2.0) in 1976 and (.41/3.4/0.4) in 1977. Changes in the years in which the standards would be met would change the estimates in this section, but the general conclusions would remain valid.

TEXACO CRITIQUE OF CONCLUSION 3

J → Acceptance of a two-car strategy is preferred to uniform nationwide application of an overly stringent standard. Restricting more severe standards only to those areas having severe auto-pollution problems (i.e. the California South Coast Air Basin) would have a favorable impact on energy conservation. It is logical that the setting of standards should follow the current statutory exception allowing the state of California to set its own standards with the rest of the nation having less severe NO_x vehicle emission standards. It should not necessarily be assumed that the California standard should be set at 0.4 gms/mi NO_x emissions. This is particularly a point for consideration since the California Statewide Air Pollution Research Center has recommended (1) that California NO_x emission control limits in gms/mi be established at 1.5-2.0 for 1977 to 1979, 1.0-1.5 for 1979 to 1981 and 1.0 for 1981-82.

REFERENCES

- (1) Statement on Auto Emission Standards presented to the Subcommittee on Environmental Pollution of the Senate Committee on Public Works by Dr. Edgar R. Stephens, Professor of Environmental Science, Statewide Air Pollution Research Center, University of California, Riverside, California - May 13, 1975.

NAS CONCLUSION 4.

TEXACO CRITIQUE OF CONCLUSION 4

(K) All of the above can, and should, be done in a manner that does not significantly increase ambient concentrations of sulfuric acid and acid sulfates. Accordingly, to insure that the choice of technology in meeting the HC, CO, and NO_x standards is consistent with this goal, a sulfuric acid light-duty motor vehicle emission standard for 1978 and subsequent model years should be established. The conference participants noted that relaxing the statutory HC, CO, and NO_x standards in itself is unlikely to result in reduction of sulfuric acid emissions below levels from 1975 automobiles. Vehicle manufacturers may well choose to continue the use of present catalyst systems, even if the standards are relaxed, for reasons of fuel economy and their investment in catalyst technology.

The conference participants, considering that growth of a fleet of light-duty motor vehicles with current emissions of acid sulfate could release considerable quantities of a toxic material at the roadway level, believed that immediate steps should be taken to minimize these emissions. An emission standard should be promulgated for 1978 model year light-duty motor vehicles even if it is not yet practical (because of lack of monitoring and health data) to establish an ambient air quality standard for the particular sulfates causing adverse effects on health. As pointed out in "Air Quality and Stationary Source Emission Control" (NAS 1975:xxlii): "The specific chemical species responsible for toxicity have not been identified, and the levels of pollutants necessary to cause toxic effects have not been determined." In spite of this uncertainty, it would appear to be prudent to take immediate steps to minimize this exposure to acid sulfate.

(N) The amount of sulfuric acid in automotive emissions would be reduced if the sulfur content of the fuel were reduced. The conference participants heard evidence that unleaded fuel can be formulated from low sulfur content components and thus about 20 to 30 percent of U.S. gasoline could be reduced to 100 ppm sulfur (from an average of about 300 ppm for all U.S. gasoline) at essentially no additional cost, and a greater percentage at an additional cost of less than a cent per gallon. Desulfurization of essentially all automobile fuel would require substantial refinery capital investment and a cost of 1 to 2¢/gal. Allocation of low sulfur fuel to areas where the potential for sulfuric acid pollution is greatest could help alleviate the problem, regardless of engine technologies employed.

(Q) The conference participants observed that the statutory HC, CO, and probably NO_x standards can be met in 1978 with at least one technology (the three-way catalyst) with no increase in emissions of sulfuric acid above the low sulfuric acid emissions from uncontrolled vehicles. With control of the sulfur content of gasoline, dual catalyst systems can probably be used to meet statutory standards with little or no increase in emissions of sulfuric acid above those of uncontrolled vehicles.

(S) Ford PROCO and Texaco TCCS engines both depend on oxidation catalysts for HC control to 0.41 gm/mi levels. As a consequence, reduction of fuel sulfur for these engines may be necessary; but even with the reduction, sulfuric acid emissions would be higher than with three-way or dual catalyst systems. This problem is particularly important with respect to the TCCS systems operating successfully on distillate fuels, which presently contain about ten times more sulfur than motor gasolines. The TCCS system does have the capability of operating on lower octane fuel than current spark ignition engines.

For diesel engines, fuel sulfur is emitted primarily as SO₂, but due to the high sulfur levels in diesel fuel (0.4 percent wt), larger amounts of sulfuric acid are emitted than from spark ignition engines. As a consequence, diesel fuel sulfur

(K) The statement that "All of the above can, and should, be done in a manner that does not significantly increase ambient concentrations of sulfuric acid and acid sulfates", is an unsupported premise as will be evident in the following comments.

As in the case of Conclusions 1 and 2, NRC has ignored completely the extensive testimony of industry before the same governmental bodies referenced before. The API as well as several individual companies commented in detail on the extensive adverse impact that a gasoline allocation and/or desulfurization program would have on the nation's energy situation. Yet gasoline desulfurization is the prime strategy upon which NRC chooses to rely. In this regard, the very presence of a representative from A. D. Little Company, an organization that has taken a position in sharp contrast to that of the oil industry, at the May 5 Conference (when experts from the API or the oil industry were not present) is highly questionable.

(L) Considerable controversy exists over such issues as the level of sulfuric acid in the atmosphere that is injurious to health, the total contribution of automotive emissions to overall sulfates in the air, and the question of if and when automotive sulfate emissions become a problem. In fact the NRC analysis does not even question whether the use of the catalyst technology, which has brought the problem to the forefront, is to the country's best interest. Since none of these issues were addressed by the NRC, to advocate the setting of sulfate emission standards before doing so is irresponsible. A wrong decision could force the use of less than desirable technology, could mandate tremendous capital expenditures unnecessarily, could increase costs to consumers, and could be wasteful of the country's resources.

(M) It is true that there is no assurance that relaxing statutory HC, CO, and NO_x will result in reduction of sulfuric acid emission levels. However, the opposite possibility, that increasing the stringency of emissions standards will force greater use of air pumps and thereby increase sulfate emissions on catalyst-equipped cars, is not even mentioned.

(N) This is a misleading statement since it does not identify the level to which gasoline would have to be desulfurized in order to acceptably reduce automotive sulfate emissions. A level of 100 ppm is subsequently discussed, but without evaluation as to whether or not this would solve the problem, (if one exists). EPA Administrator, Russell E. Train, in appearing before the House Commerce Committee in March, 1975, indicated that even with a fuel sulfur content of 100 ppm, catalyst-equipped cars would still emit sulfates at a level 20 times that of non-catalyst cars. Further, in his March 5, 1975, statement on his 1977 suspension decision, the Administrator noted that in the absence of health effects data, sulfuric acid emissions would have to be close to those of non-catalyst cars (estimated at 0.001 gms/mi) to be completely protective of public health. It would be impractical to achieve this level through gasoline desulfurization.

(O) The evidence quoted here on the quantities of unleaded low sulfur fuel attainable by blending, and at essentially no cost, is both erroneous and misleading. As mentioned previously,

levels would need to be reduced from present levels if large-scale conversion to diesel engines takes place, and reduction may be needed even with the current level of diesel use (NAS 1974:144).

"It should be noted that the 1975-76 49-state emission standards are more lenient than either the administration or the EPA proposed standards for any future year, and these standards have been met in many cases by the use of oxidizing catalysts. The adoption of either administration or EPA standards would thus not of itself result in the reduction of sulfate emissions as a consequence of the elimination of oxidizing catalysts."

many representatives of major oil companies have testified that the amount of low sulfur gasoline available by this means varies from refinery to refinery, with some incapable of blending any. It also ignores the fact that selective blending to low sulfur limits in unleaded gasolines would draw upon stocks necessary in other gasolines and could produce products which would degrade the driveability of automobiles. No mention is made of the fact that refineries able to make limited supplies of low sulfur gasoline may not be so geographically located as to permit distribution of the low sulfur blends to areas where they might be most needed.

With respect to costs, it is likely that actual blending expenses would be minimal. However, this is only a portion of the overall expense which would be encountered. There would be a need for additional facilities for the segregated storage and transportation of such fuels. These facilities would require time for construction. Adequate supplies of low sulfur fuel from selective blending would not be available to meet market demand when they were completed.

The statement that desulfurization of essentially all automotive fuel would require substantial refinery capital investment and a cost of 1 to 2¢/gal. does not touch upon the real problem of resource availability. These refinery investments have been variously estimated as ranging from \$3.7 to over \$10 billion. To make funds of this magnitude available would require that they be diverted from other projects of national priority such as the development of additional energy resources. There is no assurance that if such facilities were built, improved technology or less severe emission standards would not obviate the need for low sulfur fuels in the future. In that case, a tremendous waste of capital, manpower, and construction would have needlessly occurred.

Both the American Petroleum Institute and the National Petroleum Refiners Association have projected that the desulfurization costs for small refineries is approximately twice that for large refineries. This could force many small refineries out of business and thereby aggravate the country's energy situation even more.

Further, fuel desulfurization imposes additional process energy requirements of more than 200,000 barrels a day -- equivalent to 1.5-2.0 percent of the crude refined daily in the United States. This factor alone is in direct opposition to our national goals of achieving energy self-sufficiency and decreasing our dependence on foreign sources for our petroleum needs.

The commercial feasibility of the 3-way catalyst system has not been demonstrated relative to meeting 1978 statutory standards with acceptable durability. There are also two unstated reasons contributing to its reportedly lower sulfuric acid emissions. These include a need for a low sulfur fuel for satisfactory performance and operation at essentially a stoichiometric mixture ratio where exhaust oxygen concentration is minimal.

This statement is conjectural in that it does not provide supporting evidence that the dual catalyst can operate with lower sulfuric acid emissions nor does it indicate the sulfur content of the fuel required for this attainment.

(S) →

This statement is a supposition. To our knowledge the sulfate emissions from TCCS engines have yet to be measured. With fuels of the same sulfur content, non-catalyst equipped conventional engine systems and TCCS systems would be expected to have similar emission levels. With a catalyst, we are unaware of any evidence indicating that when operated on equivalent fuels, TCCS sulfuric acid emissions would be at higher levels than those exhibited by 3-way or dual catalyst systems. Suppositions of this nature should not be made until supporting data are available to substantiate them.

(T) →

This quotation is ambiguous. If it means that the adoption of the Administration or EPA interim standards would not in itself insure that catalytic systems are no longer used, then it is true. However, it does not recognize that adoption of such standards is likely to lead to the use of lean burn or other non-catalytic systems with their lower sulfate emissions.

If, on the other hand, the statement means that the elimination of oxidizing catalysts would not reduce sulfate emissions, this would obviously be untrue since non-catalyst equipped cars have extremely low sulfate emissions.

The reference to the quotation is incomplete and not readily traced.

NAS CONCLUSION 5.TEXACO CRITIQUE OF CONCLUSION 5

U → There is no evidence to justify relaxing the existing ambient air quality standards for the regulated pollutants. A short term (one hour) ambient air quality standard for nitrogen dioxide and ambient air quality standards for sulfuric acid and acid sulfates, and perhaps other acid aerosols, should be developed. High priority should be given to a study of the atmospheric chemistry and health impacts of these species.

V → The Summary Report of the CCAQS Committee stated that "... in general, these panels found that the evidence that has accumulated since the promulgation of the federal ambient air quality standards by the EPA Administrator on April 30, 1971 supports those standards" (NAS 1974a:6). The examination of the health effects of air pollutants in "Air Quality and Automobile Emission Control," however, noted that "The air quality standard for nitrogen dioxide should consist of a short (hourly) and a long (yearly) exposure limit." (NAS 1974b:193). The present conference found no basis for changing this assessment.

However, in this same report, the Panels on Sulfur Dioxide and on Airborne Particles state: "It should perhaps be stressed again that the 1968 standards were for total suspended particles and sulfur dioxide. It was known then (indeed, since 1930) that these were indexes only of pollution. The type of particles, their size range, and other meteorologic conditions are important. Equally, other sulfur compounds are known to be more important than sulfur dioxide, but the relation between these more precisely defined pollutants and health impairment has not yet been sufficiently well established for additional standards (for example, for acid sulfate or sulfuric acid) to be suggested" (NAS 1974a:57). The same report pointed out, however, that in guinea pig studies the amount of sulfur dioxide required to increase pulmonary resistance by 50 percent is 23 times the amount of sulfuric acid mist required to produce the same effect which is, in turn, approximately ten times the amount of zinc ammonium sulfate needed to produce the effect (NAS 1974b:478).

Based upon the Community Health and Environmental Surveillance Studies (CHESS) conducted by the EPA, sulfates (undifferentiated) appear to be associated with human health effects in the range of 8-15 ug/m³ concentrations (NAS 1975:xvii). These studies need confirmation and refinement to delineate the compound or compounds responsible and the dose response relationships.

It is worthwhile to reemphasize the recommendation made by the CCAQS: "...four areas deserve high priority in the allocation of such (research) funds: first, epidemiological studies of the human health effects of air pollutants; second, studies directed toward improving the data for measuring ambient air quality; third, modeling, using known techniques, of the interactions and chemical transformations of pollutants in the atmosphere; and fourth, laboratory studies aimed especially at establishing the effects of pollutants on the health of animals and relating these to their effects on man." (NAS 1974a:21). This is most important for acid sulfates.

U → In stating that there is no evidence to justify relaxing ambient air standards for the regulated pollutants, NRC has not taken cognizance of the growing body of evidence which indicates that there are basic faults in the oxidant standard and in the hydrocarbon-oxidant interrelationships. These faults are well recognized within EPA. There is now an internal review being undertaken within EPA in order to reassess this matter with the objective of taking into account the realities of the situation. In stating that there is no evidence for change, NRC is in effect backing a standard which is now acknowledged to be unachievable at many locations regardless of the degree of control of manmade pollutants, since natural emissions at these locations exceed present ambient air standards.

V → Standards based on maximum one-hour concentrations are highly arbitrary and are not satisfactory because of the lack of a sound statistical base on which to verify their significance. Contributing to this are the currently used measurement techniques which produce such randomly erratic peak values that they are not suitable for generating a useful statistical base. It follows, therefore, that short-term standards based on these inadequate measurements will similarly lack statistical significance. This criticism is true not only for the setting of new standards but applies also to the present short-term standards for photochemical oxidants and carbon monoxide.



NAS CONCLUSION 6.

W → It is important to examine carefully the emissions and the health effects of other non-regulated pollutants from motor vehicles.

The conference participants perceived a need for a thorough analysis of emissions to identify all chemical species present, their reaction products, and their effects. This analysis is necessary to prevent adverse effects on health and the environment, to avoid future disruptive episodes such as the controversy over sulfuric acid, and to allow a comparison of the effects of exhaust compositions from different control technologies. Of possible concern are hydrochloric and hydrobromic acids arising from the use of chemicals containing chlorine and bromine as scavengers in leaded gasoline; manganese; aldehydes; phenols; and polynuclear aromatic hydrocarbons. Previous NRC reports have commented on the possible problem uncontrolled pollutants could create (NAS 1974e:22); interaction among pollutants and synergistic impacts on health (NAS 1974a:72-87); and the hazard from specific materials (NAS 1973a).

The "need for an integrated study of air pollutants, their sources, and their effects" is stressed in "Air Quality and Stationary Source Emission Control," which concludes that "ultimately the effects of all pollutants and the techniques for their abatement, individually and in combination, must be examined so that a coherent program for the control of air pollution may be developed" (NAS 1975:xviii).

TEXACO CRITIQUE OF CONCLUSION 6

W →

There is no question that it is appropriate to develop background information on non-regulated pollutants from motor vehicles. Ideally, this information should not only permit recognition of potential problem areas but should also provide a sound technical basis for establishing control strategies in those instances where a health problem is defined. Appropriate constraints should be established to guard against the making of precipitous decisions which do not have an adequate basis and which have the potential for creating other problems. The adoption of oxidation catalysts represents an example of such a situation. The catalyst was adopted as a means of meeting the statutory standard deadline for hydrocarbons and, at the same time, allowing the engine to be retuned to improve fuel economy. Unfortunately, insufficient attention was given to the data which forewarned of a potential sulfate emissions problem. Before establishing emission standards for pollutants, it is imperative that equal attention be given to health effects, possible generation of new pollutants by the required control systems, impact on air quality standards, effects on the overall economy, as well as development of a timetable consistent with known technology. In brief, standards should not be set at arbitrary levels which are unnecessarily restrictive for health protection, do not have a sound technical basis, and which are not cost-effective.

TEXACO CRITIQUE OF CONCLUSION 7

NAS CONCLUSION 7.

- (X) → All of the above could, and should, be achieved while improving fuel economy. A significant improvement can be achieved by changes that are independent of the level of emissions.
- (Y) → Fuel economy goals can be achieved by the following methods:
- (Z) → (a) reduction in the weight of vehicles;
- (b) change in vehicle mix to include a larger proportion of small cars;
- (c) reduction in the ratio of engine power to vehicle weight;
- (d) use of more efficient transmissions, such as those that lock during cruise;
- (e) use of radial tires and improved suspension systems;
- (f) use of aerodynamic configurations that reduce drag;
- (g) use of adaptive fan cooling, which shuts down the fan when its cooling effect is not needed;
- (h) removal of power-using auxiliary equipment or improvement in its efficiency; and
- (AA) → (i) use of emission reduction technologies that are energy-efficient in preference to those that are not.
- (BB) → Delaying or relaxing emission standards does not insure that gains in fuel economy will be forth-coming. Substantial improvements in fuel economy can and should be realized at any of the proposed levels of emissions. The improved technology required to meet emissions standards may assist in improving fuel economy. Current catalyst technology provides such an example: a technology that was introduced to meet an emissions requirement also allowed the improvement of fuel economy. If future emissions standards require the introduction of more sophisticated fuel delivery systems (electronic fuel injection, for example), further gains in fuel economy should result. The development of new or improved engine technologies which simultaneously reduce emissions and fuel consumption can and should be pursued.
- (CC) → (See Table 1 for relative fuel economy using various emission control options meeting various standards.)

(X) → The conclusion states that all of the above "could and should" be achieved while improving fuel economy. This statement ignores the preponderance of data which shows the inter-relationship of emission levels and fuel economy. The testimony of the automobile manufacturers at several recent governmental hearings (1)(2)(3) points out conclusively that a 40% improvement in fuel economy by 1980 cannot be achieved unless present emissions standards are maintained. They are the experts in this field; their testimony cannot and should not be ignored without recognizing the serious consequences that could result.

(Y) → It is certainly appropriate to note approaches which can be used to improve fuel economy. The primary responsibility of the Conference on Air Quality and Automobile Emissions was to study emissions-related factors. However, in this report to the Committee, items (a) through (i) have dwelt mainly on non-engine/emissions factors which can be regarded as outside the normal perimeter of the Committee's responsibility for study. Only (i) might be considered to be directly within their purview and the treatment of it here is so scant as to provide no guidance.

(Z) → Recognition should be given to the fact that safety and damageability standards can negate some of the anticipated improvements from vehicle weight reduction.

(AA) → The statement that the use of energy-efficient technologies is preferred to those that are not is true. However, in Conclusion 2, NRC has contradictorily recognized that the use of energy-efficient technology is hampered by the constraints of statutory emission standards which are overly restrictive. There is a failure to acknowledge that all fuel-efficient technologies, including engine-related improvements which are not independent of emission levels, must be considered in order to achieve a balance in attaining total national goals.

(BB) → While it is true that less stringent standards do not insure fuel economy improvements, the lack of an absolute guarantee should not be a basis for rejecting less severe standards; particularly since it is also true that increasingly stringent emissions standards will directly interfere with achieving maximum improvement in fuel economy.

(CC) → This statement implies that technology exists that can and should be used to improve fuel economy substantially at any of the proposed levels of emissions. Subsequent statements in the paragraph do not recognize cost or complexity factors and their potential influence on vehicle maintenance requirements, the car market, and the economy.

REFERENCES

- (1) EPA 1977 Suspension Request Hearings in Washington, D. C., January 21-28, 1975.



- (2) Senate Committee on Commerce Hearings on Automobile Fuel Economy and Research and Development in Washington, D. C., March 12-13, 1975.
- (3) Senate Subcommittee on Environmental Pollution Clean Air Act Hearings in Washington, D. C., May 15, 1975.

NAS CONCLUSION 8

DD

There is a need to complete the development of emission standards and more effective controls for sources (both mobile and stationary) other than light-duty motor vehicles of HC, CO, NO_x, and sulfuric acid. Of particular concern are exhaust emissions from heavy-duty vehicles and motorcycles, evaporative emissions from vehicles, and emissions from various stationary sources.

The pollutants emitted by automobiles are also emitted by other sources, and to the extent that it is necessary to reduce the emission of HC, CO, and NO_x, there is a need to develop standards and controls for these other sources.

Heavy-duty vehicles and motorcycles are significant sources of emissions of air pollutants. Although emissions from such vehicles have not been carefully studied by the NRC, it is clear that control of these emissions should form an important part of any pollution control policy.

EE

Release of hydrocarbons due to evaporative emissions from vehicles and during the transfer of gasoline can contribute a significant fraction of the total hydrocarbon emissions in some areas. The effectiveness of evaporation controls must, therefore, be insured.

In "Air Quality and Stationary Source Emission Control," the NRC examined the contribution of various sources of nitrogen oxide emissions. (NAS 1975). The report noted that in eight of the ten largest urban air quality control regions, emissions from stationary sources exceeded those from transportation sources (see Table 2). The report also described a number of control alternatives for nitrogen oxide emissions from stationary sources which are either commercially available or in development. As stringent controls are applied to automobiles, the relative contribution of stationary sources to total NO_x emissions will grow, and control of stationary sources will increase in importance and cost effectiveness. (This will be particularly true if there is a significant increase in the use of coal in electric power plants in the near future: see Figure 1.) There is a clear need, then, to consider both stationary and mobile sources in designing strategies for nitrogen oxide control which will make possible the attainment of ambient air quality standards.

TEXACO CRITIQUE OF CONCLUSION 8

DD

There is no question but that there is a need to control harmful emissions within tolerable levels. In discussing this need it would have been appropriate for NRC to point out that such control should be cost-effective and only imposed upon society where there is a commensurate and needed benefit especially since, beyond a certain point, costs increase disproportionately for the degree of benefit obtained. Otherwise, the nation is faced with expensive programs that will not result in meaningful improvements.

EE

In discussing the release of hydrocarbons due to evaporative emissions from vehicles and during transfer of gasoline, the false impression is given that the control of these vapors will contribute to ambient air improvement. Hydrocarbons from these sources do not participate in the smog-forming reaction over most of the nation, and except for the very specialized situation in California, the need for their control is highly questionable. All of the available field information (1)(2) points to the fact that gasoline vapor loss emissions do not contribute to the ozone burden.

REFERENCES

- (1) R. A. Rasmussen and H. H. Westburg, "Measurements of Light Hydrocarbon in the Field and Studies of Transport of Oxidant Beyond an Urban Area", Washington State University, College of Engineering, Research Division - Air Pollution Section, Contract Number 68-02-1232, September 4, 1974.
- (2) L. G. Polgar and R. J. Londergan, "Ozone Formation and Transport", TRC, The Research Corporation of New England, Presented at the 79th National Meeting AIChE, March 19, 1975, Houston, Texas, Paper No. 45C.

Report of the
Conference on Air Quality and Automobile Emissions
May 5, 1975

to the
Committee on Environmental Decision Making

National Research Council
National Academy of Sciences
National Academy of Engineering

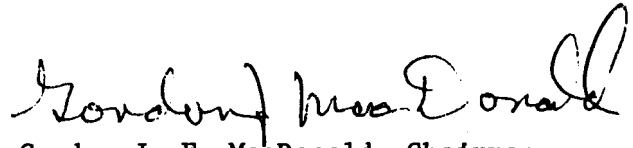
June 5, 1975

Preface

On April 4, 1975, Philip Handler, President of the National Academy of Sciences, wrote to the chairmen of National Research Council committees and panels which had recently studied aspects of the automobile and air pollution. Noting the current Congressional concern with legislative extension and possible revision of the Clean Air Act, and recognizing the existence of new and additional information since some of the NRC reports were completed, he asked these chairmen and others who were involved in their studies to meet on May 5. The objective of the conference was to "assess the current situation and identify key issues around which consideration should be focussed" so that "we may place NRC advice before the various governmental decision makers in a useful and timely manner."

The automobile emissions regulation problem is an example of the complexity of acquiring and using technical information in decision making, the enhancement of which is the subject of a comprehensive program undertaken by the NRC for the U.S. Environmental Protection Agency. Thus the record of this conference is seen to be a useful case study for the Committee on Environmental Decision Making, a central project within that program. This report is addressed to that Committee but is being made publicly available in order to place the current findings before decision makers in a useful form and timely manner.

The report has been reviewed and approved by the NRC in accordance with its procedures.



Gordon J. F. MacDonald, Chairman
Commission on Natural Resources



Herbert A. Simon, Chairman
Coordinating Committee on Air Quality Studies



J. Ross Macdonald, Chairman
Committee on Motor Vehicle Emissions



Herschel E. Griffin, Chairman
Committee on Medical and Biological Effects
of Environmental Pollutants

Conference on Air Quality and Automobile Emissions, May 5, 1975

National Academy of Sciences
2101 Constitution Avenue
Washington, D. C.

Conference Participants

T. Timothy Crocker
University of California College
of Medicine

Donald N. Dewees
University of Toronto

James A. Fay
Massachusetts Institute of Technology

Richard L. Garwin
IBM Corporation

Bernard D. Goldstein
New York University Medical Center

Herschel E. Griffin
University of Pittsburgh

A. J. Haagen-Smit
California Institute of Technology

Vladimir Haensel
Universal Oil Products Co.

Joe W. Hightower
Rice University

Gregory K. Ingram
Harvard University

James E. A. John
University of Toledo

Spurgeon M. Keeny
The MITRE Corp.

Lester Lave
Carnegie-Mellon University

Gordon J. F. MacDonald
Dartmouth College

J. Ross Macdonald
University of North Carolina

Ian C. T. Nisbet
Massachusetts Audubon Society

Ellen Quackenbush
Arthur D. Little Company

Robert F. Sawyer
University of California, Berkeley

Carl M. Shy
University of North Carolina

Herbert Simon
Carnegie-Mellon University

Jan A. J. Stolwijk
Pierce Foundation Laboratory

John Trijonis
TRW Inc.

NAS Staff

Richard A. Carpenter

E. W. Evans

Raphael Kasper

Larry Moss

John Redmond

William Robertson IV

Theodore Schad

James Wright

Conclusions and Recommendations

1. Emission standards for HC and CO (.41 and 3.4 gm/mi) for the 1978 and subsequent model year light-duty vehicles should be maintained at the current statutory levels. Attaining these levels by 1978 is both feasible and worthwhile. These levels can be achieved while steps are taken to insure against excessive emissions of sulfuric acid and acid sulfates (see Conclusion 4).
2. With respect to nitrogen oxide emission control:
 - (a) It is probably feasible with catalyst technology to achieve the statutory emission standard for NO_x (0.4 gm/mi) in 1978. There would be less uncertainty today if there had not been a slackening of effort in pursuing this goal.
 - (b) The costs of achieving 0.4 gm/mi NO_x emissions, estimated by the Committee on Motor Vehicle Emissions in its November 1974 report, are summarized in the body of the present report (see p. 9).
 - (c) Adherence to the statutory NO_x standard (0.4 gm/mi in 1978) will discourage the development and use of technologies (e.g., direct-fuel-injected stratified-charge, diesel) that could be available for limited production in the early 1980s and which offer benefits such as better fuel economy. These technologies cannot be in mass production by 1978 and, with them, a high degree of NO_x control is inherently difficult. The statutory

NO_x standard will necessitate the continued development and use of catalyst technologies which have the potential for meeting this goal by 1978.

The conference participants were not of one mind as to whether the marginal benefits of achieving in 1978 the statutory emission standard (0.4 gm/mi) for NO_x exceed the marginal costs. Some members felt that the known marginal benefits would accrue in only a few areas, so the nationwide standard could be relaxed somewhat. Others felt that, as more was learned about the health and other adverse effects of NO_x and its reaction products, the marginal benefits of attaining the statutory standards might well exceed the marginal costs; also, they believed, the actual costs might be less than estimated because of a smaller fuel economy penalty than was assumed in earlier calculations.

3. If the statutory emission standard for NO_x (0.4 gm/mi) is relaxed, a two-car strategy should be implemented. This would require vehicles that are registered and/or used in areas with more severe pollution problems to meet more stringent emission standards.
4. All of the above can, and should, be done in a manner that does not significantly increase ambient concentrations of sulfuric acid and acid sulfates. Accordingly, to insure that the choice of technology in meeting the HC, CO, and NO_x standards is consistent with this goal, a sulfuric acid light-duty motor vehicle emission standard for 1978 and subsequent model years should be established. The conference participants noted that relaxing the statutory HC, CO, and NO_x standards in itself is unlikely to result in reduction of sulfuric acid emissions below levels

from 1975 model automobiles. Vehicle manufacturers may well choose to continue the use of present catalyst systems, even if the standards are relaxed, for reasons of fuel economy and their investment in catalyst technology.

5. There is no evidence to justify relaxing the existing ambient air quality standards for the regulated pollutants. A short term (one hour) ambient air quality standard for nitrogen dioxide and ambient air quality standards for sulfuric acid and acid sulfates, and perhaps other acid aerosols, should be developed. High priority should be given to a study of the atmospheric chemistry and health impacts of these species.
6. It is important to examine carefully the emissions and the health effects of other non-regulated pollutants from motor vehicles.
7. All of the above could, and should, be achieved while improving fuel economy. A significant improvement can be achieved by changes that are independent of the level of emissions.
8. There is a need to complete the development of emission standards and more effective controls for sources (both mobile and stationary) other than light-duty motor vehicles of HC, CO, NO_x and sulfuric acid. Of particular concern are exhaust emissions from heavy-duty vehicles and motorcycles, evaporative emissions from vehicles, and emissions from various stationary sources.

Introduction

In the past several years, the National Research Council has prepared a number of reports examining various aspects of the control of emissions of pollutants from automobiles. In February 1973, the National Academy of Sciences' Committee on Motor Vehicle Emissions presented its report on the technological feasibility of achieving the automotive emission control standards established by the Clean Air Amendments of 1970 (NAS 1973c).

In November 1974, the Committee on Motor Vehicle Emissions completed the second phase of its activities and reported on the "evaluation of the technological feasibility, cost and fuel use associated with meeting various light-duty motor vehicle emissions standards for nitrogen oxides" (NAS 1974e).

While the Committee on Motor Vehicle Emissions was carrying out its work, a series of reports was prepared by the National Research Council for the Committee on Public Works of the United States Senate which examined the health effects of air pollutants, the relation of automobile emissions to ambient air quality, and the costs and benefits of automobile emission control. The reports were published by the Public Works Committee in September 1974 under the title "Air Quality and Automobile Emission Control" (NAS 1974a, b,c,d).

Finally, in March 1975 the NRC completed a study of "Air Quality and Stationary Source Emission Control" which included an analysis of the relative importance of mobile and stationary sources of nitrogen oxide emissions in the United States (NAS 1975).

Under contract to the Environmental Protection Agency, the Committee on Medical and Biological Effects of Environmental Pollutants has reviewed and continues to review the currently available data on the effects of environmental

contaminants on human health and welfare. The Committee has established panels to examine, among other pollutants, carbon monoxide, nitrogen oxides, lead, manganese, particulate polycyclic organic matter, and photochemical oxidants and ozone.

These reports, taken together, provide a comprehensive overview of most of the technological and policy issues involved in the regulation of automobile emissions. Since these reports appeared, however, there has been considerable discussion of automobile emission control in Congress, in the Environmental Protection Agency, and in the news media. Recently, the debate has placed great emphasis upon the potential adverse effects of sulfuric acid mist emissions from automobiles equipped with catalytic converters and upon the need for improved fuel economy in automobiles to conserve energy resources.

Dr. Philip Handler, President of the National Academy of Sciences, noted in his letter of transmittal which accompanied the Report of the Committee on Motor Vehicle Emissions in 1973, "...this report is presented at a time when the pace of developments can readily overtake categorical conclusions based on the information available today; it is, therefore, a review of the current 'state-of-the art', presented while that state is changing rapidly, and not a summary of a stabilized situation." The statement is still true.

* * * * *

For reference, the current statutory schedule for automobile emission standards is summarized below:

	(all in grams per mile)		
	<u>HC</u>	<u>CO</u>	<u>NO_x</u>
<u>1975-1976</u>			
Federal 49 States	1.5	15.0	3.1
California	.9	9.0	2.0
<u>1977</u>			
Federal 49 States	.41	3.4	2.0
	(suspended until 1978)	(suspended until 1978)	
California	.41	9.0	1.5
<u>1978</u>	.41	3.4	0.4

The conference participants also considered sets of emissions standards which have been proposed recently including the following:

	<u>HC</u>	<u>CO</u>	<u>NO_x</u>
Administration Proposal (through 1981)	.9	9.0	3.1
EPA Proposal			
1977-79	1.5	15.0	2.0
1980-81	.9	9.0	2.0
post 1981	.41	3.4	to be determined

* * * * *

Table 2

1972 NO_x Emissions from 10 Largest Urban Air Quality Control Regions^a

AQCR ^b (Name of Largest City)	Total Emissions (10 ⁶ tons/year)	Stationary Fuel Combustion Emissions (10 ⁶ tons/year)	Transportation Emissions (10 ⁶ tons/year)	Other Sources
New York-New Jersey- Connecticut Interstate	1.15	0.69	0.43	0.11
Metropolitan Los Angeles Intrastate	1.20	0.79	0.36	0.05
Metropolitan Chicago Interstate	1.33	1.07	0.23	0.03
Metropolitan Philadelphia Interstate	2.58	0.24	0.18	2.16 ^c
San Francisco Bay Area Intrastate	0.28	0.06	0.19	0.03
Metropolitan Detroit-Fort Huron Intrastate	2.01	1.85	0.15	0.01
Greater Metropolitan Cleveland Intrastate	0.29	0.15	0.13	0.01
Metropolitan Boston Intrastate	0.17	0.09	0.07	0.01
National Capitol Inter- state (Washington, D.C.)	0.18	0.09	0.09	0
Metropolitan St. Louis Interstate	0.43	0.31	0.11	0.01
TOTAL	9.62	5.26	1.94	2.42

^aAQCR's chosen by SMSA population

^bAQCR's listed in descending order of SMSA population

^cDue to industrial process emissions

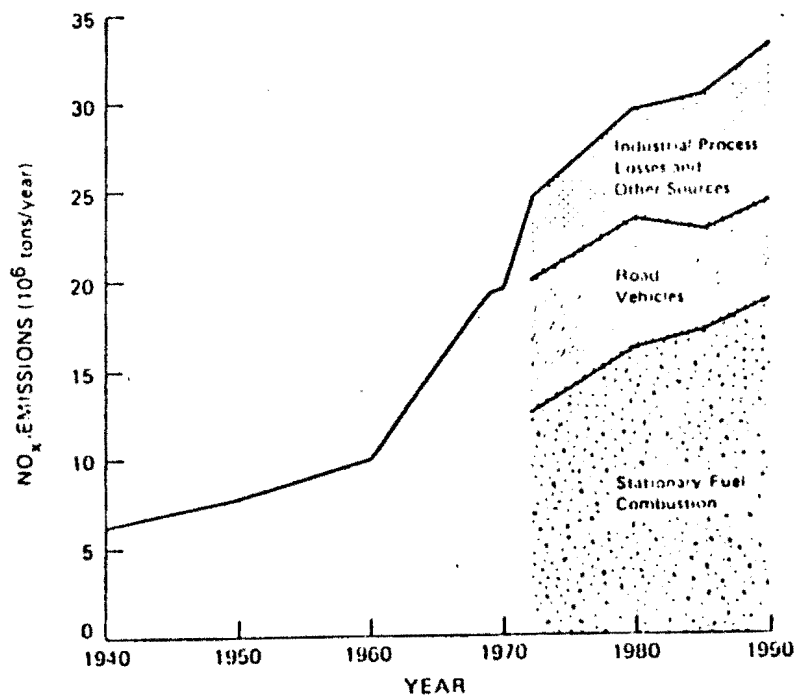


FIGURE 1: Nationwide NO_x Emissions Projected to 1990 Assuming the Present Statutory Program.

REFERENCES

- National Academy of Sciences (1973a) Medical and Biologic Effects of Environmental Pollutants: Manganese. Washington, D. C. 191 pp.
- National Academy of Sciences (1973b) Proceedings of the Conference on Health Effects of Air Pollutants. Prepared for the Committee on Public Works, U.S. Senate. Washington, U.S. Government Printing Office. 709 pp.
- National Academy of Sciences (1973c) Report by the Committee on Motor Vehicle Emissions. Washington, D. C. 190 pp.
- National Academy of Sciences (1974a) Air Quality and Automobile Emission Control, Volume 1 - Summary Report. Prepared for the Committee on Public Works, U.S. Senate. Washington, U.S. Government Printing Office. 129 pp.
- National Academy of Sciences (1974b) Air Quality and Automobile Emission Control, Volume 2 - Health Effects of Air Pollutants. Prepared for the Committee on Public Works, U.S. Senate. Washington, U.S. Government Printing Office. 511 pp.
- National Academy of Sciences (1974c) Air Quality and Automobile Emission Control, Volume 3 - The Relationship of Emissions to Ambient Air Quality. Prepared for the Committee on Public Works, U.S. Senate. Washington, U.S. Government Printing Office. 137 pp.
- National Academy of Sciences (1974d) Air Quality and Automobile Emission Control, Volume 4 - The Costs and Benefits of Automobile Emission Control. Prepared for the Committee on Public Works, U.S. Senate. Washington, U.S. Government Printing Office. 470 pp.
- National Academy of Sciences (1974e) Report by the Committee on Motor Vehicle Emissions. Washington, D. C. 140 pp.
- National Academy of Sciences (1975) Air Quality and Stationary Source Emission Control. Prepared for the Committee on Public Works, U.S. Senate. Washington, U.S. Government Printing Office. 909 pp.
- U.S. Environmental Protection Agency (1974) Automotive Emission Control - The Technical Status and Outlook as of December 1974. Washington, D.C.



THE STATE OF OHIO
OFFICE OF THE GOVERNOR
STATE HOUSE, COLUMBUS 43215

JAMES A. RHODES
GOVERNOR

July 3, 1975

President Gerald R. Ford
The White House
Washington, D.C.

Dear Mr. President:

OHIO NEEDS CONSTRUCTION AS SOON AS POSSIBLE OF THE NATIONAL MOTOR VEHICLE COMPLIANCE CENTER.

In 1971 D.O.T., Undersecretary Volpe, selected the Transportation Research Center of Ohio as the site for construction of the National Motor Vehicle Compliance Center at a cost (today) of \$18,000,000.

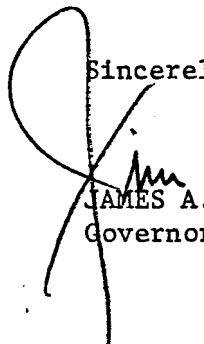
Nothing has been done except draw plans. It's ready to go. We need it in your Fiscal Year 1977 budget.

Ohio will lease 400-550 acres for the project at one dollar a year.

The Transportation Research Center of Ohio, largest in the world, was built under my previous administration. The use of the center by private industry reads like "WHO'S WHO" in America. It's time for the U.S. Government to get aboard.

For more information, you can contact Mr. George Wilson, liaison for federal programs at the center, at 216-836-9166.

Sincerely,


JAMES A. RHODES
Governor



Please have Secretary Coleman contact me about this at his earliest convenience.

THE WHITE HOUSE

WASHINGTON

July 9, 1975

MEMORANDUM FOR JIM CAVANAUGH
FROM: MIKE DUVAL
SUBJECT: AUTO EMISSIONS



On July 1, I sent forward the attached memorandum addressed to Max Friedersdorf, concerning follow-up to the auto emissions amendment to the Clean Air Act.

I am terribly afraid we are going to get behind the eightball on this, as both the Rogers and Muskie subcommittees are in markup. Can you please let me know what has happened. Thanks very much.



THE WHITE HOUSE

WASHINGTON

July 18, 1975

MEMORANDUM FOR:

DICK DUNHAM

FROM:

JIM CANNON

SUBJECT:

Auto Emissions



At the 8:00 a.m. staff meeting this morning, it was suggested that we prepare a paper for the President suggesting he ask for hearings by the full Committee on auto emissions and send up a bill to extend existing standards for five years.

Talking later with Max Friedersdorf, we agree that we should emphasize jobs and what the President would say about this to the Hill -- jobs for people rather than what this would do for the auto industry.

Attached are several bills, one or more of which might have been written by the auto industry. It seems to me appropriate that the President have his own bill on what he feels should be done on auto emissions.

Attachments

cc: Jim Cavanaugh

Auto Sworas

Leon Balling

7/24/75

Get a sense - unintentionally -

Wing is



No strong act in the
Council for a time to
Waikarua

FCA - material doesn't
support need

Controversial - - Heavens -
DOT - NAT Academy -

Ford's data has not overcome.
reversing other data.

Members of my country

Preponderance of data -
defensible on basis
to stop them for any

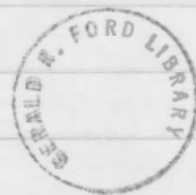
period of time - will have
with health in part.

Auto ind. - In one
They envision 5-yr freeze.
to commit longer for permanent
freeze.

Self-imposed acid mist -
unintended or deliberate
Record demonstrates - if Pres every
goals to be achieved catalyst
Committee have to be continued.

That alone not a
sufficient reason to relax auto
standards.

Buckley
Staff
W. C. Allen
Donovan



Zab & Mustie
& Bulchey

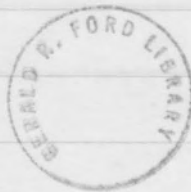
I

Committee has
high regard for Russ Tracie

letter to Zab on Energy.

II

Gene Thompson is asking
any way can get
manufacture directly
going down from
Hudonks -



THE WHITE HOUSE

WASHINGTON

July 24, 1975

ADMINISTRATIVELY CONFIDENTIAL

MEMORANDUM FOR:

JIM CANNON

FROM:

JIM CONNOR *jc*

SUBJECT:

AUTO EMISSIONS AND OTHER CLEAN
AIR ACT PROBLEMS

Confirming phone call to your office this evening, the President has reviewed your memorandum of July 24th and approved the following:

Alt. #2 Prepare the following for my signature:

Transmittal letter and bill to extend
standards through 1981.

Letters to Committee Chairmen
asking for hearings.

Please follow-up with appropriate action.



cc: Don Rumsfeld

DOMESTIC COUNCIL CLEARANCE SHEET

DATE: July 24, 1975

JMC action required by: ASAP

TO: JIM CANNON

VIA: DICK DUNHAM *Dick*

~~JIM CAVANAUGH~~

FROM: *JS* GLENN SCHLEEDE

SUBJECT: DECISION MEMO - AUTO EMISSION STANDARDS
AND OTHER CLEAN AIR ACT PROBLEMS

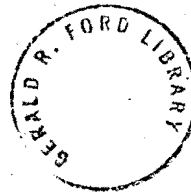
COMMENTS:

DATE: 7/24/75

RETURN TO:

Material has been:

- ☒ Signed and forwarded
☐ Changed and signed (copy attached)
☐ Returned per our conversation
☐ Noted



JMC
Jim Cannon

THE WHITE HOUSE

WASHINGTON

DECISION

July 24, 1975

MEMORANDUM FOR

THE PRESIDENT

FROM:

JIM CANNON

SUBJECT:

AUTO EMISSIONS AND OTHER
CLEAN AIR ACT PROBLEMS



The Rogers Subcommittee of House Commerce and Muskie Subcommittee of Senate Public Works are continuing work on Clean Air Act Amendments -- with the goal of reporting bills to their full committees before the recess. The outlook is bleak for all of the Administration's major amendments and the Subcommittees are considering how requirements would be troublesome.

The Current Issue

The issue for your consideration at this time is whether additional actions should be taken in an attempt to improve chances of getting acceptable auto emission standards. Specifically:

- . Do you wish to send up a bill now which would carry out your June 27 proposal to extend 1975-76 auto emission standards through model year 1981?
- . Do you wish to request formally that House and Senate Committees reopen Clean Air Act Hearings so that Zarb and others can testify?

Background

On June 27 you sent a message to Congress asking that present auto emission standards be continued for five years. Both the House and Senate Subcommittees completed hearings on auto emissions before your proposal was transmitted. The proposal has attracted very little favorable attention in the Congress or the Press. It has had virtually no visible impact on Subcommittees' actions. A bill proposed by Senator McClure in Subcommittee to extend standards for five years lost by a vote of eight to one. Neither Subcommittee has indicated any intention of reopening hearings to consider findings that led to your June 27 proposals.

While neither Subcommittee's actions are final, both have voted to adopt standards much more rigid than you proposed. Tab A contrasts their decisions with your proposal. In the House, there is some chance that standards will be loosened in full Committee. In the Senate, the full Committee is unlikely to change the final Subcommittee action, particularly since only three members (Randolph, Burdick and Baker) of the full Committee are not members of the Subcommittee.

The other major amendments to the Clean Air Act which you proposed on January 30 in your Energy Independence Act are also running into trouble. The status of these amendments and several new problems -- including a requirement for land use plans approved by EPA -- are summarized briefly at Tab B.

Alternatives for Actions Now on Auto Emissions

- . Alt #1. No Additional Presidential Action now. Continue and expand efforts by Zarb and others to get Subcommittees to adopt Administration proposals. Reconsider situation after final Subcommittee action.
 - . The principal arguments for this are that your position is already clear, that additional actions are unlikely to get favorable actions and may expose you to even more criticism from environmentalists and the Press.
 - . The principal arguments against it are that the outlook for acceptable standards is now bleak and additional actions by you may make a difference; and the economic consequences of the issue are critical.
- . Alt #2 Transmit bill to implement 5-year extension and/or formally request Committees to hold hearings on your June 27 proposal. Supplement this action with (a) Zarb personal contacts with Committee members as soon as possible, (b) concerted effort to inform the public about the merits of the proposal.
 - . The principal arguments for this are that a Presidentially-proposed bill would provide a rallying point for members who would support your proposal; and another communication from you would provide the basis for additional publicity to help gain support.

- . The principal arguments against this are the potential for additional negative reaction to your proposal; and the slim chances for getting acceptable standards because the issue is complex and difficult to explain to Congress or the public; there is wide disagreement among experts on air quality and health impacts, and it is difficult to document the negative auto sales and job impacts of tighter standards.

Recommendations and Decision

_____ Alt. #1. No additional Presidential action now.

- . Peterson
- . Hartmann - believes your position is already clear and Congress should take the heat if it disregards your position.
- . Train - believes additional actions could be counter productive, particularly in the Senate.

_____ Alt. #2. Prepare the following for my signature:

- | | | |
|----------------|---------|--------------------------------|
| . Zarb | _____ X | Transmittal letter and bill to |
| . Lynn | | extend standards through 1981. |
| . Morton | | |
| . Seidman | _____ X | Letters to Committee Chairmen |
| . Greenspan | | asking for hearings. |
| . Cannon | | |
| . Friedersdorf | | |



THE WHITE HOUSE
WASHINGTON

ACTION

July 25, 1975

MEMORANDUM FOR THE PRESIDENT

FROM: JIM CANNON *Jim*
SUBJECT: AUTO EMISSION STANDARDS

The enclosed letters carry out your decision to transmit a bill to extend automobile emission standards and to request the Senate Public Works and House Commerce Committees to hold hearings on your proposal.

Recommendation

That you sign the letters to the Speaker and the President of the Senate transmitting the draft bill (Tabs A and B) and to Chairmen Randolph and Staggers requesting hearings (Tabs C and D). These letters have been reviewed and approved by Paul Theis. The bill has been cleared by Jim Lynn.



THE WHITE HOUSE

WASHINGTON

Dear Mr. Speaker:

On June 27, 1975, I transmitted a special message to the Congress which described the complex problem of setting automobile emission standards which strike the best possible balance among our air quality, public health, energy, consumer cost and other economic objectives.

As indicated in that message, I have concluded that automobile emission standards should not be more rigid than those applied to 1975 and 1976 model cars because more rigid standards unnecessarily would increase car prices, reduce gasoline mileage, and increase energy demands. There is also the potential that tighter standards would require emission controls that result in new pollutants with serious health impact.

I am enclosing a draft of a bill which would implement the recommendations described in detail in my June 27th message. I urge prompt passage of this bill.

Sincerely,

The Honorable
The Speaker
U.S. House of Representatives
Washington, D.C. 20515



THE WHITE HOUSE

WASHINGTON

Dear Mr. President:

On June 27, 1975, I transmitted a special message to the Congress which described the complex problem of setting automobile emission standards which strike the best possible balance among our air quality, public health, energy, consumer cost and other economic objectives.

As indicated in that message, I have concluded that automobile emission standards should not be more rigid than those applied to 1975 and 1976 model cars because more rigid standards unnecessarily would increase car prices, reduce gasoline mileage, and increase energy demands. There is also the potential that tighter standards would require emission controls that result in new pollutants with serious health impact.

I am enclosing a draft of a bill which would implement the recommendations described in detail in my June 27th message. I urge prompt passage of this bill.

Sincerely,

The Honorable Nelson A. Rockefeller
President of the Senate
Washington, D.C. 20510

A BILL

To amend the Clean Air Act to continue 1975-76 Federal automobile emission standards through the 1981 model year to permit a balance among the important objectives of improving air quality, protecting public health and safety, and avoiding unnecessary increases in consumer costs for automobiles, decreases in gasoline mileage, and increases in the Nation's dependence on imported oil.

Be it enacted by the Senate and the House of
Representatives of the United States of America in
Congress assembled,

Sec. 2. The Clean Air Act, as amended, is amended as follows:

(a) Section 202(b)(1)(A) is amended to delete therefrom "1977" and insert in lieu thereof "1982."

(b) Section 202(b)(1)(A) is further amended to delete the last sentence therefrom and insert the following sentence in lieu thereof:

"The regulations under subsection (a) applicable to emissions of carbon monoxide and hydrocarbons from light-duty vehicles and engines manufactured during model years 1975 through 1981, inclusive, shall contain standards which are identical to the interim standards which were prescribed (as of December 1, 1973) under paragraph (5)(A) of this subsection for light-duty vehicles and engines manufactured during model year 1975.



(c) Section 202 (b)(1)(B) is amended to read as follows:

"The regulations under subsection (a) applicable to emission of oxides of nitrogen from light-duty vehicles and engines manufactured during model years 1975 through 1981 inclusive shall contain standards which are identical to the standards prescribed (as of December 1, 1973) under subsection (a) for light-duty vehicles and engines manufactured during model year 1975. The regulations under subsection (a) applicable to oxides of nitrogen from light-duty vehicles and engines manufactured during or after model year 1982 shall be established at such level as the Administrator determines is appropriate considering air quality, energy efficiency, availability of technology, cost, and other relevant factors. The Administrator shall publish for public comment no later than July 1, 1977, proposed standards for 1982 model year light-duty vehicles and engines and his tentative conclusions with respect to the matters he is required to consider under this paragraph and shall publish his final standards and his findings no later than July 1, 1978. Such standards may be revised after appropriate notice following such date based upon substantial changes in any of the factors the Administrator is required to consider under this paragraph.

THE WHITE HOUSE

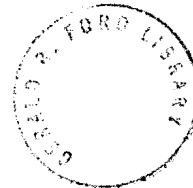
WASHINGTON

Dear Mr. Chairman:

On June 27th, I transmitted to the Congress a special message which described the conclusions from a detailed executive branch review of the air quality, health, energy, and consumer cost implications of alternative automobile emission standards. I recommended that 1975-76 standards for automobile emissions be extended by the Congress through model year 1981.

I believe it important that the Congress and the public have a full opportunity to hear in detail the findings of our studies and the basis for my conclusions that existing standards should be continued. I recognize that the hearings held by your subcommittee on auto emissions ended before our studies were completed. I urge you to hold another hearing on this matter so Administration witnesses can present the findings.

Sincerely,



The Honorable Harley O. Staggers
Chairman
Interstate and Foreign Commerce Committee
House of Representatives
Washington, D.C. 20515

THE WHITE HOUSE

WASHINGTON

Dear Mr. Chairman:

On June 27th, I transmitted to the Congress a special message which described the conclusions from a detailed executive branch review of the air quality, health, energy, and consumer cost implications of alternative automobile emission standards. I recommended that 1975-76 standards for automobile emissions be extended by the Congress through model year 1981.

I believe it important that the Congress and the public have a full opportunity to hear in detail the findings of our studies and the basis for my conclusions that existing standards should be continued. I recognize that the hearings held by your subcommittee on auto emissions ended before our studies were completed. I urge you to hold another hearing on this matter so Administration witnesses can present the findings.

Sincerely,

The Honorable Jennings Randolph
Chairman
Public Works Committee
United States Senate
Washington, D.C. 20510



THE WHITE HOUSE

WASHINGTON

July 28, 1975

MEMORANDUM FOR: MAX FRIEDERSDORF
FROM: GLENN SCHLEEDE
SUBJECT: LEGISLATION AND HEARINGS ON
AUTO EMISSION STANDARDS

I have asked Bob Linder to get to you as soon as possible copies of the signed Presidential letters (which are dated July 26) to:

- . The Speaker and President of the Senate, transmitting the auto emissions bill.
- . Chairmen of Senate Public Works and House Commerce Committees asking for hearings.

John Carlson has the letters on stencils, as well as the fact sheet, for release by the Press Office and I understand he will coordinate with you and Bob Linder on the time for release.

I have not given Bob Linder a list of members who should get copies, assuming you would take care of that. May I suggest that you include Senators McClure and Griffin for special advance notice. Copies probably should go to all minority members of the Senate Public Works and the Rogers Subcommittee of House Commerce if there is time.

Please let me know if I can help.

Unsigned copies of the letters and the bill are enclosed.

cc: ✓ Jim Cavanaugh
Dick Dunham



THE WHITE HOUSE

WASHINGTON

Dear Mr. Speaker:

On June 27, 1975, I transmitted a special message to the Congress which described the complex problem of setting automobile emission standards which strike the best possible balance among our air quality, public health, energy, consumer cost and other economic objectives.

As indicated in that message, I have concluded that automobile emission standards should not be more rigid than those applied to 1975 and 1976 model cars because more rigid standards unnecessarily would increase car prices, reduce gasoline mileage, and increase energy demands. There is also the potential that tighter standards would require emission controls that result in new pollutants with serious health impact.

I am enclosing a draft of a bill which would implement the recommendations described in detail in my June 27th message. I urge prompt passage of this bill.

Sincerely,

The Honorable
The Speaker
U.S. House of Representatives
Washington, D.C. 20515

THE WHITE HOUSE

WASHINGTON

Dear Mr. President:

On June 27, 1975, I transmitted a special message to the Congress which described the complex problem of setting automobile emission standards which strike the best possible balance among our air quality, public health, energy, consumer cost and other economic objectives.

As indicated in that message, I have concluded that automobile emission standards should not be more rigid than those applied to 1975 and 1976 model cars because more rigid standards unnecessarily would increase car prices, reduce gasoline mileage, and increase energy demands. There is also the potential that tighter standards would require emission controls that result in new pollutants with serious health impact.

I am enclosing a draft of a bill which would implement the recommendations described in detail in my June 27th message. I urge prompt passage of this bill.

Sincerely,

The Honorable Nelson A. Rockefeller
President of the Senate
Washington, D.C. 20510

A BILL

To amend the Clean Air Act to continue 1975-76 Federal automobile emission standards through the 1981 model year to permit a balance among the important objectives of improving air quality, protecting public health and safety, and avoiding unnecessary increases in consumer costs for automobiles, decreases in gasoline mileage, and increases in the Nation's dependence on imported oil.

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled,

Sec. 2. The Clean Air Act, as amended, is amended as follows:

(a) Section 202(b)(1)(A) is amended to delete therefrom "1977" and insert in lieu thereof "1982."

(b) Section 202(b)(1)(A) is further amended to delete the last sentence therefrom and insert the following sentence in lieu thereof:

"The regulations under subsection (a) applicable to emissions of carbon monoxide and hydrocarbons from light-duty vehicles and engines manufactured during model years 1975 through 1981, inclusive, shall contain standards which are identical to the interim standards which were prescribed (as of December 1, 1973) under paragraph (5)(A) of this subsection for light-duty vehicles and engines manufactured during model year 1975.



(c) Section 202 (b)(1)(B) is amended to read as follows:

"The regulations under subsection (a) applicable to emission of oxides of nitrogen from light-duty vehicles and engines manufactured during model years 1975 through 1981 inclusive shall contain standards which are identical to the standards prescribed (as of December 1, 1973) under subsection (a) for light-duty vehicles and engines manufactured during model year 1975. The regulations under subsection (a) applicable to oxides of nitrogen from light-duty vehicles and engines manufactured during or after model year 1982 shall be established at such level as the Administrator determines is appropriate considering air quality, energy efficiency, availability of technology, cost, and other relevant factors. The Administrator shall publish for public comment no later than July 1, 1977, proposed standards for 1982 model year light-duty vehicles and engines and his tentative conclusions with respect to the matters he is required to consider under this paragraph and shall publish his final standards and his findings no later than July 1, 1978. Such standards may be revised after appropriate notice following such date based upon substantial changes in any of the factors the Administrator is required to consider under this paragraph.



THE WHITE HOUSE

WASHINGTON

Dear Mr. Chairman:

On June 27th, I transmitted to the Congress a special message which described the conclusions from a detailed executive branch review of the air quality, health, energy, and consumer cost implications of alternative automobile emission standards. I recommended that 1975-76 standards for automobile emissions be extended by the Congress through model year 1981.

I believe it important that the Congress and the public have a full opportunity to hear in detail the findings of our studies and the basis for my conclusions that existing standards should be continued. I recognize that the hearings held by your subcommittee on auto emissions ended before our studies were completed. I urge you to hold another hearing on this matter so Administration witnesses can present the findings.

Sincerely,

The Honorable Jennings Randolph
Chairman
Public Works Committee
United States Senate
Washington, D.C. 20510

THE WHITE HOUSE

WASHINGTON

Dear Mr. Chairman:

On June 27th, I transmitted to the Congress a special message which described the conclusions from a detailed executive branch review of the air quality, health, energy, and consumer cost implications of alternative automobile emission standards. I recommended that 1975-76 standards for automobile emissions be extended by the Congress through model year 1981.

I believe it important that the Congress and the public have a full opportunity to hear in detail the findings of our studies and the basis for my conclusions that existing standards should be continued. I recognize that the hearings held by your subcommittee on auto emissions ended before our studies were completed. I urge you to hold another hearing on this matter so Administration witnesses can present the findings.

Sincerely,

The Honorable Harley O. Staggers
Chairman
Interstate and Foreign Commerce Committee
House of Representatives
Washington, D.C. 20515