

Originally Processed With FOIA(s):
2001-1865-F

FOIA Number:
2001-1865-F

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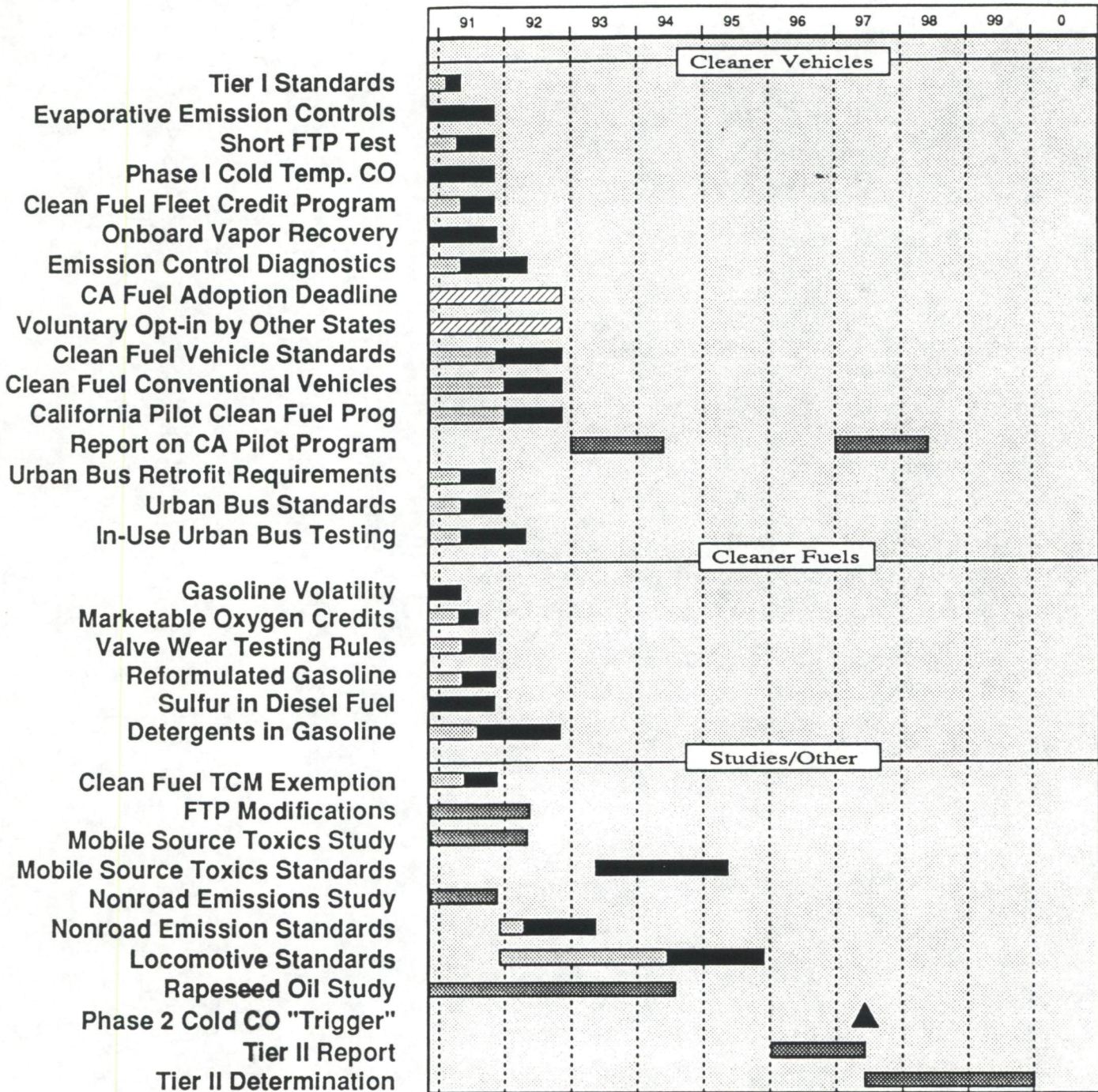
OA/ID Number: 45125
Folder ID Number: 45125-028

Folder Title:
Clean Air Act - On Board

Stack:	Row:	Section:	Shelf:	Position:
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**MOBILE SOURCE PROVISIONS
OF THE
CLEAN AIR ACT
AMENDMENTS OF 1990**

Title II - Mobile Sources



DEC 17 1990

Mobile Sources Month-by-Month
Calendar Year 1991

February:

Propose Tier 1 tailpipe standards

April:

Propose:

Marketable oxygen credits.

I/M test in FTP.

Fees for mobile source programs.

May:

Propose:

Emission control diagnostics.

Clean Fuel Fleet Vehicles exempt from TCM rules.

Lead Substitute testing rules (including fees).

Revised procedures for determining emissions control durability

Revised procedures for conformity determinations

Reformulated gasoline

Bus requirements

Propose Clean Fuel Vehicle Credit Programs (for fleets and California programs).

Standards for CNG vehicles

Promulgate:

Tier 1 tailpipe standards and 1991-92 urban bus standard

Revisions to RVP control regs.

May:

Guidance for VMT forecast

Emission factors reviewed and revised (Title 8)

June:

Guidance (revised and updated) on I/M programs

August:

Propose:

Detergents in Gasoline.

Promulgate:

Marketable Oxygen Credits.

October:

Cold CO Phase I.

Publish Nonroad Emissions Study

November:

Propose Clean-Fuel Vehicle Standards.

Promulgate:

Evaporative Emissions

I/M Test in FTP

Sulfur Content Requirements for Diesel Fuel

Bus Requirements

Clean Fuel Vehicle Credit Programs (for fleets and California programs)

Reformulated Gasoline

Onboard Vapor Recovery

Clean Fuel Fleet Vehicles except from TCM rules

Lead Substitute Rules (including fees).

Conformity determination criteria

NOx and VOC Study (mobile source contribution)

Information documents to states on TCM's

Award Rapeseed Oil Study contract.

December:

Propose fuels and fuel additives testing protocols.

Promulgate Revised Procedures for determining emission control durability

Calendar Year 1992

January:

Propose:

Conversions of conventional vehicles to clean-fuel.

California Pilot

Voluntary opt-in for other states

February:

Promulgate standards for CNG vehicles

May:

Promulgate:

Emission Control Diagnostics

Mobile Source-related Air Toxics Study.

Publish study of Federal Test Procedure

November:

Promulgate:

Detergents in Gasoline

Clean-Fuel Vehicle Standards

Conversions of conventional vehicles to clean-fuel

California Pilot

Voluntary opt-in for other states

"Substantially Similar" definitions for fuels

Later

By January 1, 1993:

Report to Congress on transportation systems

May 1993

Fuels and fuel additives testing protocols promulgated.

June 1994

Locomotive standards proposed.

Report to Congress on California pilot.

November 1994

Rapeseed Oil Study submitted to Congress

May 1995

Mobile Source-related Air Toxics Standards (within 54 months).

November 1995

Locomotive standards promulgated by November 1995 (within 5 years).

Heavy-duty engine NOx standard promulgated

Even Later:

Tier II report by 6/1/97

Cold CO trigger 6/1/97

Report to Congress on California pilot June 1998

Tier II determination by 12/31/99

OUTLINE OF
CLEAN AIR ACT PROJECT SUMMARY

- I. Project Name:
 - A. Project Manager:
 - B. Key Provisions and Deadlines:
- II. Technical and Policy Issues
 - A. Technical:
 - B. Policy:
- III. Environmental and Economic Implications
 - A. Environmental Impacts and Timing:
 - B. Economic Impacts:
 - C. Pollution Prevention/Energy:
- IV. Deliverables and Schedule
- V. Coordination/Participation
 - A. Within EPA:
 - B. Other Federal Agencies:
 - C. State and Local Agencies:
 - D. Environmental Groups:
 - E. Other External Groups:
- VI. Related Actions

EXTERNAL COORDINATION

Since Enactment:

- STAPPA/ALAPCO and NESCAUM
- GM
- Ford
- CARB
- DOT: NHTSA, FHWA and UMTA
- DOE
- American Gas Association
- API
- Amoco
- Archer-Daniels-Midland
- RFA
- Auto/Oil Research Program
- Bill Rosenberg speech to transportation industry officials in Detroit on January 14
- Public meeting to discuss implementation issues on Jan. 16 (300 attendees)

MORE STRINGENT TAILPIPE STANDARDS

**CARS: • PHASE-IN OF TIER I STANDARDS BEGINNING
WITH 1994 MODELS**

NMHC : 0.25 GRAMS PER MILE

CO : 3.4

NO_x : 0.4

**• BY END OF 1999 EPA DETERMINES THE NEED,
COST AND FEASIBILITY OF TIER II STANDARDS
FOR 2004 AND LATER MODELS**

NMHC : 0.125

CO : 1.7

NO_x : 0.2

• USEFUL LIFE REQUIREMENTS ARE EXTENDED

NEW STANDARDS SET FOR ALL CATEGORIES OF TRUCKS

COLD TEMPERATURE CO TAILPIPE STANDARD

- **CURRENT CO STANDARD (3.4 GRAMS PER MILE)
MEASURED AT 75 DEGREES F**
- **ALMOST ALL HIGH CO POLLUTION DAYS OCCUR AT
COLDER TEMPERATURES**
- **NEW STANDARD FOR CARS AND LIGHT TRUCKS
(10.0) BEGINS WITH 1994 MODELS**
- **MEASURED AT 20 DEGREES F**
- **MORE STRINGENT STANDARD TAKES EFFECT IN 2002
IF 6 OR MORE CITIES REMAIN IN NONATTAINMENT
WITH CO AIR QUALITY STANDARD IN MID-1997**

REFORMULATED GASOLINE

- **ALL GASOLINE SOLD IN 9 WORST OZONE CITIES BEGINNING IN 1995**
- **2.0% MINIMUM OXYGEN, AVERAGING ALLOWED**
- **15% VOC AND TOXICS REDUCTIONS FROM 1990 BASELINE FUEL**
- **1.0% MAXIMUM BENZENE, AVERAGING ALLOWED**
- **REDUCTION OF AROMATICS AS NECESSARY TO MEET TOXICS STANDARD**
- **IN 2000 VOC AND TOXICS REDUCTIONS MUST BE 25%, IF NOT FEASIBLE EPA CAN SET AT 20%**
- **NO NO_x INCREASE**
- **ANTI-DUMPING PROVISION**
- **ANY OZONE AREA CAN OPT-IN**
- **ANTI-DEPOSIT DETERGENTS MUST BE ADDED TO ALL GASOLINE NATIONWIDE**

Also want to do Reg. Xley

OXYGENATED FUELS CO PROGRAM

- Beginning November 1, 1992, all gasoline in 41 CO nonattainment areas must be oxygenated during winter months
- 2.7% oxygen level
- EPA can delay program start by up to 2 years for insufficient domestic supply and distribution capacity

Clean Fuels for Fleets

- Covers fleets of 10 or more vehicles that are (or are capable of) central fueling
- Begins in 1998 in 22 metropolitan areas, unless cars meeting these standards are not being sold in California; then begins by 2001
- Thirty percent of new fleet purchases, phasing-up to seventy percent, must meet California LEV standards (0.075 NMHC, 3.4 CO, 0.2 NO_x)
- Certain large truck fleets are covered

CALIFORNIA CLEAN CAR PILOT PROGRAM

- PHASE I BEGINS IN 1996 WITH 150,000 CARS AND LIGHT TRUCKS MEETING TAILPIPE STANDARDS OF 0.125 NMHC, 3.4 CO, 0.4 NO_x
- 300,000 CARS PER YEAR BY 1999
- PHASE II BEGINS IN 2001; LEV STANDARDS OF 0.075 NMHC, 3.4 CO, 0.2 NO_x
- CALIFORNIA MUST ADOPT PROGRAM TO ASSURE FUEL AVAILABILITY; IF IT DOES NOT, EPA MUST
- CALIFORNIA CAN ADOPT ITS OWN VEHICLE CONTROL PROGRAM INSTEAD OF THE PILOT PROGRAM
- OTHER STATES MAY OPT-IN TO PROGRAM

N.Y., Mass. have already opted-in

A number of other states (mostly N.E., but also TX + IL)

URBAN BUSES

- **STRINGENT DIESEL PARTICULATE STANDARD (0.1 GRAMS) DELAYED FROM 1991 TO 1993**
- **BEGINNING IN 1994 ALL NEW URBAN BUSES MUST MEET A 0.05 PM STANDARD; IF NOT TECHNICALLY FEASIBLE, EPA CAN SET AT 0.07**
- **IF EPA FINDS THAT BUSES IN-USE ARE NOT MEETING THE 1994 STANDARD, IT MUST IMPLEMENT A "LOW POLLUTING FUELS" PROGRAM FOR NEW BUSES IN LARGE CITIES**
- **IN LARGE CITIES BUSES WHICH HAVE THEIR ENGINES REPLACED OR REBUILT IN 1995 OR LATER MUST MEET EMISSION STANDARDS SET BY EPA WHICH REFLECT THE BEST RETROFIT TECHNOLOGY ACHIEVABLE**

NON-ROAD ENGINES

- EPA GIVEN NEW AUTHORITY TO CONTROL EMISSIONS FROM NON-ROAD ENGINES THAT CONTRIBUTE TO URBAN AIR POLLUTION
- WITHIN 12 MONTHS EPA MUST COMPLETE A STUDY OF NON-ROAD ENGINES
- WITHIN 24 MONTHS EPA MAY ISSUE REGULATIONS REQUIRING THE GREATEST DEGREE OF EMISSION REDUCTION ACHIEVABLE FOR ANY CATEGORY OF ENGINES WHICH CONTRIBUTES SIGNIFICANTLY TO URBAN POLLUTION
- STANDARDS MUST BE SET FOR NEW LOCOMOTIVES WITHIN 5 YEARS
- STATES, INCLUDING CALIFORNIA, MAY NOT REGULATE EMISSIONS FROM CONSTRUCTION AND FARM EQUIPMENT ENGINES LESS THAN 175 HP
- CALIFORNIA MAY REGULATE OTHER NON-ROAD ENGINES AND OTHER STATES MAY REQUIRE CALIFORNIA-TYPE ENGINES TO BE SOLD WITHIN THEIR BOUNDARIES

AUTO WARRANTIES

- **CURRENT 5 YEAR / 50,000 MILE EMISSIONS WARRANTY EXTENDED TO 8 YEARS / 80,000 MILES FOR CATALYTIC CONVERTER, ELECTRONIC CONTROL UNIT AND ONBOARD DIAGNOSTIC CONTROLS; EPA MAY ADD OTHER MAJOR CONTROL DEVICES**
- **ALL OTHER EMISSION DEVICES ON 1995 AND LATER CARS WILL BE WARRANTED FOR 2 YEARS / 24,000 MILES**

AIR TOXICS

- **WITHIN 18 MONTHS EPA MUST COMPLETE A STUDY OF THE NEED FOR AND FEASIBILITY OF CONTROLLING EMISSIONS OF TOXIC POLLUTANTS EMITTED BY MOTOR VEHICLES AND FUELS**
- **WITHIN 54 MONTHS, BASED ON THE STUDY, EPA MUST ISSUE REGULATIONS TO CONTROL EMISSIONS OF BENZENE AND FORMALDEHYDE**
- **AT EPA'S DISCRETION OTHER TOXIC POLLUTANTS MAY ALSO BE CONTROLLED**

LEAD IN GASOLINE

- **AS OF JANUARY 1, 1996 LEAD IS BANNED FROM USE IN MOTOR VEHICLE FUEL**
- **EPA IN COOPERATION WITH THE DEPARTMENT OF AGRICULTURE IS REQUIRED TO DEVELOP PROCEDURES FOR TESTING THE EFFECTIVENESS OF LEAD SUBSTITUTE ADDITIVES FOR USE IN GASOLINE**
- **BEGINNING WITH MODEL YEAR 1993 IT WILL BE UNLAWFUL TO MANUFACTURE OR SELL NEW MOTOR VEHICLE ENGINES AND NON-ROAD ENGINES THAT REQUIRE THE USE OF LEADED GASOLINE**

REFUELING CONTROLS

ONBOARD

- EPA, AFTER CONSULTATION WITH DOT ABOUT SAFETY, MUST ISSUE REGS WITHIN 12 MONTHS
- ONBOARD SYSTEMS TO BE REQUIRED ON NEW CARS BEGINNING IN THE 4TH MODEL YEAR FOLLOWING PROMULGATION OF RULE

STAGE II

- GASOLINE PUMP CONTROLS REQUIRED IN 57 OZONE NONATTAINMENT AREAS BEGINNING WITHIN 2-1/2 TO 4 YEARS, HOWEVER, THE 32 MODERATE AREAS ARE EXEMPTED AFTER EPA PROMULGATES THE ONBOARD REGULATIONS
- COVERS STATIONS PUMPING 10,000 GALLONS PER MONTH (50,000 FOR INDEPENDENTS)
- STAGE II CONTROLS CAN BE REMOVED AFTER EPA DETERMINES THAT ONBOARD CONTROLS ARE IN WIDESPREAD USE

TRANSI

- WITHIN 9 MONTHS
QUALITY PLAN
- WITHIN 12 MONTHS
- VMT VERIFICATION
EXTREME AREAS
- EVERY 3 YEARS
CONSISTENT
- IF NECESSARY
VMT / EMISSIONS
- VMT GROWTH ()
- STATES REQUIRE
OFFSET PROGRAMS
- EMPLOYER
EMPLOYEE

INSPECTION / MAINTENANCE PROGRAMS

- I/M PROGRAMS WILL BE REQUIRED IN 110 AREAS, 40 OF WHICH
DO NOT NOW HAVE I/M
- BASIC I/M IN ALL MODERATE OZONE NONATTAINMENT AREAS
- ENHANCED I/M IN ALL SERIOUS, SEVERE AND EXTREME OZONE
AREAS, PLUS ALL CO AREAS GREATER THAN 12.7 PPM, PLUS
ALL MSAs OF 100,000 OR MORE POPULATION IN THE
NORTHEAST TRANSPORT REGION
- EPA ESTABLISHES A MINIMUM PERFORMANCE STANDARD AND
STATES HAVE FLEXIBILITY IN PROGRAM DESIGN
- MOST COMMON ENHANCEMENT WILL BE ADDITION OF ANTI-
TAMPERING CHECKS
- ANNUAL AND CENTRALIZED PROGRAMS ARE REQUIRED UNLESS
THE STATE CAN SHOW THAT BIENNIAL OR DE-CENTRALIZED
PROGRAMS ARE EQUALLY EFFECTIVE

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May 6, 1991

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Jeffrey Holmstead, Esq.
Office of the Counsel
106 Old Executive Office Building
Washington, D.C. 20500

Dear Jeff:

I am enclosing at the request of Arnie Wellman some materials related to the issue of relief from transportation control measures (TCMs). I have included a copy of the Clean Air Act provision exempting clean fuel vehicles from TCMs, the legislative history of the provision (a statement by Rep. Lent), and a one-page presentation of UPS views on the subject that was circulated during the House-Senate Conference on the clean air bill.

As we have discussed, UPS firmly believes that the statutory language and legislative history clearly provide that the exemption for clean fuel vehicles should apply to TCMs nationwide, not just in the 22 cities covered by the Clean Air Act fleet program. And, a TCM should be covered by the exemption regardless of whether its purpose is anticongestion, "quality of life," or environmental. It is our understanding, however, that EPA is taking a more narrow approach and is not making full use of its statutory mandate.

Both Arnie and I look forward to continuing to work with you on this and other fleet issues in the days ahead.

Sincerely,



Paul C. Smith

cc: Arnie Wellman

CONFERENCE REPORT ON S.
1630—THE CLEAN AIR ACT
AMENDMENTS

SPEECH OF

HON. NORMAN F. LENT

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

Friday, October 26, 1990

Mr. LENT. Mr. Speaker, with this legislation, Congress will have put in place a new structure for achieving significant progress in cleaning our country's air. This legislation is tough and will require major new expenditures on air pollution control. But at the same time, we have tried to ensure that the new regulatory programs will be flexible and cost-effective and will utilize market-based incentives to improve the environment. These are the hallmarks of President Bush's approach and should be foremost in mind in the implementation of this act. . . .

. . . I would like to address several specific provisions within title II of the act that concern the Clean-Fuel Vehicle Fleet Program.

With respect to transportation control measures [TCM's], my colleagues are no doubt aware that current law relies on State and local TCM's to reduce pollution emissions. These measures can involve time of day restrictions, odd-even driving plans, and similar traffic control concepts in nonattainment areas. As emissions standards become more stringent, it is likely that TCM's will be relied on in the future to a far greater extent than in the past.

Under the conference agreement, covered fleet vehicle owners are encouraged and directed to shift to clean-fuel vehicles. However, these vehicle owners risk having those clean burning vehicles kept off the roads and streets because of TCM's imposed, in whole or in part, to regulate polluting vehicles.

The conference report resolves this difficulty by providing that clean-fuel vehicles will not be subject to vehicle use restrictions or other TCM's established by State or local authorities. The new provision would require the Ad-

ministrators to promulgate regulations within 1 year of enactment of the Clean Air Act that will ensure that TCM's, including time-of-day or day-of-week restrictions and other similar measures that restrict vehicles usage, do not apply to any clean-fuel fleet vehicle that meets the emissions requirements of the new alternative fuels program. Since the authority for the TCM's covered by this provision can originate under various State and local powers, the regulations are intended to be broad in scope and not be limited by how the TCM is designated or the nature of the enabling law under which it was authorized. Thus, a TCM would be covered regardless of whether

the purpose of the restriction is environmental, anticongestion, or "quality of life," except that restrictions for highway safety—such as weight restrictions and road closures—would not be covered.

The conference report provides for clear, certain, and early EPA action to ensure that relief from TCM's is available to clean-fuel vehicles they acquire or convert. This limited exception to TCM's for alternatively fueled vehicles will create a strong market incentive for use of these vehicles. It will be important that the rulemaking, and the effectiveness of the resulting rule, occur not later than a year after the effective date of the act, even though the first year model year covered by the mandate of title II isn't until late in the 1990's. There are many fleet operators that are already beginning to shift to alternative fuels. Delays in establishing the TCM exception—and necessary standards—can create a moratorium on developing and implementing clean-fuel fleets, as fleet operators hold off for fear that their early compliance will not be eligible for certification as clean vehicles. It is not Congress' intent to stop or slow down voluntary progress before 1998. EPA should ensure that the title II TCM rulemaking is prompt and has immediate effect, whether by issuing interim guidelines or standards for the conversions and acquisitions that occur after it is issued. . . .

Clean Air Conference Clean Fuel Fleet Program

Major emphasis is placed on the fleets program under both Senate and House versions of the clean air legislation. Although they establish unprecedented mandates and requirements on fleets, UPS supports such far-reaching programs so long as they address the major barriers to successful implementation — the most important of which is the dilemma raised by urban transportation control measures (TCMs).

Transportation Control Measures

It is both inconsistent and counter-productive to seek to have fleet operators buy clean fuel vehicles but then permit cities and States to impose transportation control measures on those same vehicles (such as time-of-day restrictions, odd-even driving measures, etc). TCMs and the clean fleets program are each designed to reduce smog and improve air quality. Greater emissions reductions will occur if they are made to work in harmony rather than at cross purposes. Relief from TCM's offers the fleet owner an inducement to make voluntary fleet conversions.

- **Target TCMs to Polluting Vehicles**

The problem with TCMs is that they apply to both polluting and clean-fuel vehicles. Clean-fuel vehicles, which produce fewer emissions, are not part of the problem but part of the solution. Their use should not be restricted, nor should those fleets that are aggressively working toward phase-in conversions to clean fuels.

- **3 Ways to Make TCM adjustments a Clean Air Incentive**

- **MAKE IT CLEAR:** Ambiguity acts as a disincentive! Clear regulatory relief will prompt a range of fleet owners to comply.
- **MAKE IT CERTAIN:** If relief is provided but can be taken away later, it loses its effect as an incentive.
- **MAKE IT EARLY:** If the TCM adjustment must occur within a year, fleets will start shifting now. If it does not apply until 1995 or 1998, years of emissions reductions and potential industry leadership will be lost.

- **Extreme Areas, Like L.A., Have the Most to Gain**

Number of Cities Covered

Covering upwards of 27 cities, or approximately 25% of the nation's population, for an untried program represents a very disruptive initiative. The program should be targeted only to the worst areas.

Some fuels, like natural gas, can be successful for fleet deliveries in cities where population density is high, but because of mileage range limits and other factors it may be impractical for these to operate in smaller cities and rural sections of non-attainment areas. Mandated use of clean-fuel vehicles in some areas could result in serious dislocation of jobs and diminished productivity.

UPS provides essential services in every community in the country. What happens in the cities has a direct bearing on our level of service throughout the country.

Cars and Light Trucks Versus Heavy-Duty Vehicles

Cars and light duty vehicles differ from heavy-duty vehicles by more than weight and size. The variety of use, type of operation, and technology limitations suggest that the heavy duty vehicles be covered through a voluntary opt-in program rather than a mandate.

Numerically, the urban pollution problem comes from cars and light trucks (8,500 lbs. gvwt or less), which far outnumber heavy trucks. The focus should be on cars and light-duty vehicles because that is where the payoff is.

Technology has not developed equally across all fronts; clean fuel technology has progressed the most for cars and light duty vehicles, but not for heavy duty vehicles.

AUG 19 1991

Comments to GAO Final Report
on Vapor Recovery Systems

Barry Felrice **Original Signed By**
Associate Administrator for Rulemaking

Barbara Kernan
Associate Administrator for Administration

Rulemaking finds that the GAO report adds little to resolving the debate over the safety of on-board systems. The report seems to reflect GAO's frustration over the failure of EPA and NHTSA to resolve their differences (frustrations which the two agencies themselves also have) and GAO basically waves its arms and says we should do good things. Their specific recommendation -- to prepare an "action plan"--is devoid of specifics, fails to consider our statutory responsibilities, and does not adequately reflect prior actions. The report also contains factual inaccuracies. Detailed comments follow.

First, it is important to note that the agency, on August 5, submitted a report to EPA documenting, once again, our safety concerns. This addresses EPA's request (see p.3 of the report) for "additional analyses." If EPA concurs in our findings, then there is no need for any further action.

GAO, while stating that the required consultation has indeed taken place, concludes that NHTSA and EPA must resolve their disagreements. While a laudable goal, we don't believe this is necessary. As GAO states, NHTSA and EPA have been trying for more than 4 years to resolve this issue. Both EPA and NHTSA have done safety analyses which the other has criticized. To attempt to eliminate bias, we have each contracted with outside parties to address the issue and those studies have also been critiqued. All of these studies and analyses, and the approach to be taken in them, have been coordinated. Thus, contrary to GAO's assertion that "the agencies have not developed an approach to resolve their differences," we have attempted to do exactly that.

What the GAO report fails to recognize is that disagreement is healthy. The Clean Air Act Amendments do not require EPA and NHTSA to resolve differences of opinion on on-board equipment safety. The law only requires a consultation process, a process which has taken place. At every step of the process the two agencies have coordinated their activities. We have reviewed each other's contractual work statements and understood the types

of analyses to be done. Where we disagree is on how well those analyses were conducted; and, thus, their conclusions. Over time, we have learned much about the problem and we believe this is good for both agencies. While our differences may still exist (we can't be sure because EPA has not responded to our most recent analysis), it is not due to an agreed on approach, as GAO asserts.

GAO also asserts that the agencies have "not defined their roles or agreed on the information and analyses needed to address the safety concerns." Again, we disagree. Our roles are clear; NHTSA, through consultation, advises EPA on the safety of on-board systems. EPA has the statutory authority to require such systems so long as they do not pose an "unreasonable" risk to safety. We would expect EPA to use our input in deciding whether the safety risk is or is not "unreasonable." That decision is EPA's to make and does not require agreement by NHTSA. Indeed, it is hard to imagine a NHTSA Administrator saying that it's okay to have an additional X deaths and Y injuries. Our mandate is to reduce highway casualties, not to acquiesce in their increase. It is up to others (the Congress or the President) to weigh the safety consequences against the environmental benefits. Thus, there already is an Executive Branch process for resolving the issue. Agreement between EPA and NHTSA is unnecessary, just as is unanimity within either of those two agencies.

This leads to GAO's view that there is no mechanism to resolve differences. Indeed, there is. That is the regulatory review process by OMB. That organization acts as an arbiter in disputes on regulatory issues among agencies and that process worked previously when OMB did not approve EPA's earlier proposal to require on-board systems. We believe the disagreements between EPA and NHTSA are healthy and illustrate one of the reasons why the OMB review process was established.

We must take strong exception to GAO's comments that "no...plans are being formulated" between NHTSA and EPA to address safety concerns of alternative fuels. This issue has been discussed at several of our quarterly meetings, EPA has shared with us reports they have done on the issue, and we have sent our internal regulatory recommendations, as well as formal rulemaking notices, for EPA review and comment. NHTSA has already issued ANPRM's with EPA's concurrence on the safety of vehicles powered by alcohol or compressed natural gas and we have just requested EPA's (as well as DOE's) comments on a potential ANPRM on electric vehicle safety. Thus, GAO's conclusions are simply erroneous on this issue.

Also, GAO's recommendation that we "work with" the automobile industry is a wide departure from current practice and is fraught with peril. GAO suggests that NHTSA participate in reviewing specific designs to "correct any safety defects or manufacturing flaws." While we would not be averse to continuing our consultation with EPA to advise them in this area, any "blessing"

of particular designs could negate our ability to conduct subsequent safety-related recalls.

In conclusion, I believe NHTSA has been constant and clear in its advice to EPA that on-board systems would degrade safety. While the magnitude of that degradation is not precisely known, increased safety hazards are the only possible results of the implementation of on-board controls. No action plan and no amount of consultation or review of designs can alter that conclusion (the problem perhaps can be mitigated through such efforts but can never be eliminated). As such, NHTSA would never endorse a government action which would knowingly degrade safety. As long as EPA continues to believe that the environmental benefits are worth the safety tradeoff, agreement between the two agencies will not occur. Thus, we believe GAO examined the wrong issue. The issue is not what decision criteria should be used to reach conclusions on the safety of on-board systems but rather whether any safety degradation is a reasonable cost to attain the expected environmental benefits. And that decision is EPA's (and OMB's) to make.

Because this issue is so volatile, I suggest you set up a meeting with the Administrator and other interested offices to decide what tack we wish to take in responding to GAO.

cc: Associate Administrator for Enforcement

bcc: Felrice
Cohen

BFelrice:bc:61810:8/19/91
NRM-01 Chron/Subj/Signer

EPA Honors Its Employees



Beverly Randolph, Secretary, Office of Water, receives Administrator's Award for Excellence from Lee M. Thomas.



Benjamin H. Bochenek



William W. Erwin



Harold W. Hopkins



Edwin C. Horn, Jr.

Awards for outstanding service were presented to 105 Environmental Protection Agency staff members and a Coast Guard officer at the Agency's 18th Annual Awards Ceremony. Award recipients, many accompanied by their families, came from headquarters, regional offices and laboratories around the country for the colorful program, which was held in the Interior Department Auditorium not far from EPA's Waterside Mall complex.

Lee M. Thomas, outgoing Administrator, declared "I am proud of you and your work. I am optimistic about the future of the environment because of you and that work."

Reviewing the Agency's accomplishments during his six-year tenure, he urged increased emphasis on: science; waste minimization and recycling; wetland and groundwater protection;

and improved enforcement and federal-state working relationships.

Thomas, who got a standing ovation, concluded that EPA must continue providing leadership for our nation in protecting the environment and the ecology. "If EPA doesn't, no one else will."

EPA's Band, Men's Chorus, and Mixed Chorus, led by Mary McInnis, honored Thomas with a special musical presentation.

Program Chairman John A. Moore, Acting Deputy Administrator; Thomas; and other EPA leaders presented the awards.

Distinguished Career

Honored with Distinguished Career Awards for their service over an extended period of time were: Benjamin H. Bochenek, Patent Counsel in the Office of General

Counsel, for "outstanding contributions to the development of patent policy for Federal Environmental Programs."

William W. Erwin, Agricultural Consultant in the Office of the Administrator, for his "exemplary service to the Environmental Protection Agency and the agricultural sector."

Harold W. Hopkins, Chief of the Facilities Construction Branch in the Region 4 Water Management Division, for a distinguished career in administration of the Construction Grants Program.

Edwin C. Horn, Jr., Water Quality Branch, Region 5, for "exceptional service in improving compliance maintenance through sound financial management practices."

Norton Nelson, who chairs the Executive Committee of the Science

Advisory Board, "for insightful technical guidance, distinguished leadership of the Science Advisory Board, and skillful consensus building in support of sound science and engineering policies."

Gold Medals

Recipients of Gold Medals for Exceptional Service were: Charles W. App, Environmental Engineer, Water Management Division, Region III, for his work with a water quality model for the Chesapeake Bay Program; Douglas A. Ehorn, Deputy Chief, Water Quality Branch, Region 5, for developmental work in wetlands enforcement, outreach, and advanced identification projects; Charles L. Gray, Jr., Director, Emission Control Technology Division, for technical leadership in fostering the



Norton Nelson



Charles W. App



Douglas A. Ehorn



Charles L. Gray, Jr.



Lisa A. Haage



Edward J. Hanley



Ma



Micheline A. Ward



Charlotte Bercegeay



Vanessa Bowie



Jacqueline Brown



Mary Jane Clark



Denise Cunningham-
Abney



Ja

use of clean fuels to control environmental pollution: **Lisa A. Haage**, Attorney, Office of Regional Counsel, Region 9, for her representation of the Agency in the clean up of the Operating Industries Superfund Site; **Edward J. Hanley**, Director, Office of Information Resources Management, Office of Administration and Resources Management, for his leadership of the EPA information resources function; and **Mark Satterwhite**, Environmental Protection Specialist, for negotiating the first Superfund Memorandum of Agreement, Multi-site, and Core Program Cooperative Agreements with the Navajo Indian Nation.

In addition, six **Gold Medals** were awarded to teams of EPA workers for their joint efforts. So honored were:

The Administrator's Executive Team, **Patricia Thorne**, **Betty Wonkovich**, and **Yvonne Countee**, for the smooth and efficient functioning of the Office of the Administrator; The Estuary Program Team in the Office of Water, **Tudor**

Davies, **Thomas DeMoss**, **Michelle Hiller**, and **Stephen Glomb**, for developing a national program for comprehensive environmental management of the nation's estuaries; The Land Disposal Restrictions Team from the Office of Solid Waste and Emergency Response and the Office of General Counsel, **Steve Weil**, **James Berlow** and **Steve Silverman**, for developing the final regulations that restrict land disposal of more than one-third of all regulated hazardous wastes;

Also, the Cannons Engineering Superfund Team from Region 1, **Michael Thomas** and **Gregory Roscoe**, for "extraordinary contributions" to Superfund enforcement through their leadership in the Cannons Engineering settlements; the Champion International Permit Team from Region 4, **John T. Marlar**, **Fritz Wagener III**, **Jacqueline F. Colson**, **Suzanne Durham**, and **Bruce R. Barrett**, for the technical, legal, and public relations leadership in developing a wastewater discharge permit which will

lead to restoration of the Pigeon River in North Carolina and Tennessee.

Also, the Oxygenated Fuels Team from the Region 8 Office of Air and Radiation, **Dale M. Wells**, **John O. Hidinger**, **Irwin L. Dickstein**, **Joseph H. Somers**, and **Philip A. Lorang**, for developing the first mandatory oxygenated fuel program in the United States to reduce carbon monoxide in the Metro Denver area; and the National Municipal Policy Team from the Office of Water and the Office of Enforcement and Compliance Monitoring, **James R. Elder**, **J. William Jordon**, **Glenn L. Unterberger**, **David N. Lyons**, **Charles J. Evans**, and **Brian Maas**, for their work in bringing municipal sewage treatment plants into compliance with Clean Water Act requirements.

Silver Medals

Silver Medals for Superior Service were presented to **Angela E. Auletta**, Supervisory Biologist in the Office of Toxic Substances, Office of

Pesticides and Toxic Substances, for "exceptional service in the protection of human health from exposure to chemicals and for providing national and international leadership in genetic toxicology;" **Rebecca A. Barclay**, Program Analyst, Office of Enforcement and Compliance Monitoring, for her "outstanding contribution" to creation of a formal program to train and recognize compliance inspectors and field investigative personnel; **Sam Colon-Velez**, Chief, AIRS Section, Office of Air Quality Planning and Standards, Office of Air and Radiation, RTP, for "exceptional achievement" in developing data systems to expand state and federal capabilities to protect the nation's air quality;

Also, **David J. O'Connor**, Director, Procurement and Contracts Management Division, Office of Administration and Resources Management, for "outstanding and creative leadership" of the Agency procurement program during a period of exceptional growth and



Peter White



Angela E. Auletta



Rebecca A. Barclay



Sam Colon-Velez



David J. O'Connor



Marilyn Shannon



Elaine M. Davis



Deborah Good



Bette Hahn



Linda Hilwig



Claudia Hood



Tina Kroske

change; Marilyn Shannon, Chemist, Central Regional Laboratory, Region 5, for "exceptional scientific achievement" in developing the Microwave Digestion Method of analyzing water samples for metals, and Micheline A. Ward, Human Resources Development Coordinator, in the Region 10 Management Division, for "outstanding initiative and creativity" in promoting human resources excellence and growth.

Teams awarded Silver Medals included the Onboard Technology Task Force from the Office of Air and Radiation, Ann Arbor, MI; Charles L. Gray, Jr., Chester J. France, John F. Anderson, John J. Gabrysiak, and Carl Fuller, Jr., for "outstanding skill and effectiveness" in developing a simplified onboard refueling emissions control system; the EDB Disposal Team from the Office of Pesticides and Toxic Substances, Office of Administration and Resources Management, Office of Research and Development, Office of General Counsel, Regions 6 and 7, Ralph Hazel, James

Sales, Donald Oberacker, Malcolm Huneycutt, Patricia Roberts, Judy Heckman, Steve Johnson, and Carol Stangel, for "exceptional service" in collecting and disposing of the pesticide EDB in a timely and cost-effective way; The National Surface Water Survey Team from the Office of Research and Development, Rick A. Linthurst, Dixon H. Landers, James M. Omernik, and Eugene P. Meier, for their "successful and creative leadership" of that survey, and The Puerto Rico Negotiating Team from Region 2, Douglas R. Blazey, Richard L. Caspe, Herbert Barrack, Warren Llewellyn, and Noelia Marti, for achieving an outstanding enforcement settlement agreement between EPA and the Puerto Rico Aqueduct and Sewer Authority; The Ashland Oil Spill Team from Region 3, Jerry Saseen, Raymond Germann, Alan Jackson, Stephen Jarvela, Thomas Voltaggio, Charles Dispoto, Vincent Zenone, Gary Bryant, and Eugene Miklaucic of the United

States Coast Guard, for "exceptional service" in undertaking the emergency response actions in connection with the Ashland Oil Company spill; and the Sheridan ADR Team from Region 8, Alfred C. Smith and Jack W. Hoffbuhr, for "outstanding leadership" in applying Alternative Dispute Resolution procedures to the Sheridan, Wyoming, water supply problem.

Administrator's Awards

The Administrator's Award for Excellence was presented to twenty support staff members:

Charlotte Bercegeay, secretary, Office of Research and Development, Research Triangle Park; Vanessa Bowie, secretary, Office of Administration and Resources Management; Jacqueline Brown, Technical Information Specialist, Office of General Counsel; Mary Jane Clark, Office of Air Quality Planning and Standards, Research Triangle Park; Denise Cunningham-Abney, secretary, Office of

Pesticides and Toxic Substances; Jacqueline M. Davis, secretary, Office of the Inspector General, Atlanta, GA; Deborah Good, secretary, Office of International Activities; Bette Hahn, secretary, Region 8; Linda Hilwig, secretary, Office of International Activities; Claudia Hood, secretary, Office of Enforcement and Compliance Monitoring (NEIC), Denver, CO; Tina Kroske, secretary, Region 4; Laura Loux, administrative specialist, Region 9; Helen McCue, secretary, Region 3; Tanya Meekins, secretary, Office of External Affairs; Kathleen Montalte, secretary, Region 7; Divola Nettles, administrative assistant, Region 10, Boise, ID; Tamara Odell, congressional assistant, Region 5; Beverly Randolph, secretary, Office of Water; Wanda Sturdivant, secretary, Office of Solid Waste and Emergency Response; and Deloris Swann, secretary, Office of Policy, Planning and Evaluation.



Laura Loux



Helen McCue



Tanya Meekins



Kathleen Montalte



Divola Nettles



Tamara Odell



Beverly Randolph



Wanda Sturdivant



Deloris Swann



Ann C. Dartez



Marylouise Uhlig



Valdas V. Adamkus

Special Awards

Ann C. Dartez, environmental engineer, Region 6, was presented the **Trudy A. Speciner Award** for "an outstanding contribution by a non-supervisory employee."

Marylouise Uhlig, Director, Office of Program Management Operations, Office of Pesticides and Toxic Substances, received the **A. James Barnes Award** for Exemplary Leadership in Human Resources Management. This honor was "in recognition of extraordinary commitment and dedication to the conviction that the people of EPA are its greatest resource."

Barnes won this award in 1986 it is now presented annually.

The **Fitzhugh Green Award** for Outstanding Contributions to International Environmental Protection went to Valdas V. Adamkus, Regional Administrator, Region 5. Adamkus has been extensively involved in the U.S.-Canada International Joint Commission

for the Great Lakes and other environmental efforts of the two nations.

Green, for whom the award is named, molded EPA's international policy for over 10 years.

Scientific Awards

The Scientific and Technological Achievement Awards: These awards are granted each year by the Assistant Administrator for Research and Development to encourage high quality peer-reviewed journal articles by EPA scientists and engineers. The highest award is given for publications that result from exceptionally high quality research and technological achievement. The 1987 award winners are a group from Research Triangle Park who co-authored a paper entitled: "Lung Cancer and Indoor Air Pollution in Xuan Wei, China." They are: **Drs. Judy Lee Mumford** and **Robert S. Chapman**, Human Effects Research Laboratory, **Bruce Harris**, Air and Energy Engineering Research Laboratory, and

Dr. William E. Wilson, Atmospheric Sciences Research Laboratory.

Committee Members

Members of this year's EPA Awards Board are: John Chamberlain, Office of Administration and Resources Management, Chair; Kenneth Dawsey, Office of Human Resources Management; Nathaniel Scurry, Office of Civil Rights; Alexandra Smith, Region 4; Paul Keough, Region 1; Rob Cahill, Office of the Administrator; W. Ray Cunningham, Office of Air and Radiation; Richard Morgenstern, Office of Policy, Planning and Evaluation; Richard Sanderson, Office of External Affairs; Rebecca Hanmer, Office of Water; Victor Kimm, Office of Pesticides and Toxic Substances; Gerald Yamada, Office of General Counsel; Frank Covington, Region 5; Donald Kirkendall, Office of the Inspector General; Walter Kovalick, Office of Solid Waste and Emergency

Response: Roger Cortesi, Office of Research and Development; Lee Deihns, Region 4, and Gerald Bryan, Office of Enforcement and Compliance Monitoring. □

The EPA Times is published monthly for EPA employees. Readers are encouraged to submit news of themselves or fellow employees, letters of opinion, questions, comments, and suggestions to the Editor, The EPA Times, Office of Public Affairs (A-107). Telephone: 475-6643. Items selected for publication may be edited to accommodate space available.

Marilyn Rogers
Roy Popkin

Vaporizing Safety

Last year Congress and the Bush administration joined to declare themselves solidly in favor of clean air, ignoring evidence of potentially severe side effects from the regulatory binge mandated by the Clean Air Act. Now the hard part — writing regulations to implement the massive legislation — is under way, and creating clean air out of whole legislation is turning out to be a difficult task.

One of the requirements of the Clean Air Act is to mitigate fuel vapor emissions from automobiles and trucks. These are responsible for a tiny fraction of hydrocarbon emissions, which combine with sunlight and nitrogen oxides in the air to form ozone, a major component of smog. The main source of vapor emissions is refueling, when vapor is forced out of the tank by liquid fuel.

There are two ways to prevent most vapor emissions: onboard vapor recovery canisters attached to the vehicle's fuel system, and mechanisms attached to fuel pumps (known as Stage II). The latest Stage II systems incorporate a tiny vacuum inside the fuel nozzle, making it as easy to use as a regular gas pump; Amoco already has some in use.

Stage II has other advantages. It can be installed only where ozone is a problem, and it can be installed quickly. It is also the most efficient

Stage II systems can remove 93 percent of all refueling emissions, vs. only 83 percent for onboard systems — and safest means of vapor recovery. Best of all, the total cost of Stage II is several billion dollars less than the cost of installing onboard systems on every new car or truck.

But the Clean Air Act directs the Environmental Protection Agency to opt for onboard recovery. Once such a system has been perfected, it would be at least 15 to 20 years — about the time it takes for older vehicles to be retired — before the entire U.S. vehicle fleet could be equipped. In the meantime, progress toward cleaner air would be needlessly lost.

More important, however, perhaps thousands of lives would be lost. Not to lung diseases caused by dirty air but to cars that blow up. Crash tests conducted by the National Highway Traffic Safety Administration have revealed serious safety problems with onboard vapor canisters. No matter how well-protected the canisters may be, there is a possibility of rupture in a collision or simply as a result of aging, and fuel vapor is extremely volatile. In one routine crash test, for example, light bulbs set vapor on fire. Damage or deterioration of vapor canisters might not always be obvious, so an automobile could seemingly spontaneously combust while

sitting in a traffic jam, for example.

Such problems were anticipated by Congress with an important exception to the onboard rule: The EPA must choose other methods of fuel vapor recovery if safety problems are found with onboard systems. NHTSA Administrator Jerry Ralph Curry has informed EPA Administrator William Reilly that NHTSA safety experts "continue to have concerns about the fundamental risk to public safety posed by onboard systems." Yet the EPA, prodded by service station operators who do not want to pay for Stage II recovery systems, continues to fight hard (as it has for at least three years) for onboard recovery within administration policy councils.

Third District Rep. Thomas Bliley is pressing the EPA solution. He takes as his major guidance a "study" by the Center for Auto Safety, a Naderite group which has a history of distorting data. The Center for Auto Safety says that NHTSA data show no significant post-crash fire problems involving existing evaporative systems, and that is in the strictest sense true. Because it is almost impossible to determine the precise cause of a post-crash auto fire, NHTSA has never kept any such data. The Center, which has a well-documented anti-auto-industry bias, claims that "any increased crash safety risk from onboard systems ... could easily be handled by improved technology." This is a familiar refrain from the misnamed Center for Auto Safety, which has recently disregarded safety concerns in other regulatory matters, such as fuel economy regulations.

We are astonished and distressed that the conservative Mr. Bliley would put any stock in claims made by a leftist outfit with such a shoddy reputation. And we are astounded at his reading of the Clean Air Act. According to Mr. Bliley, the EPA has a "non-discretionary duty to issue ... a regulation requiring onboard systems." We would direct Mr. Bliley's attention to Section 202 (a)(6) of the Clean Air Act, which says such regulations may be issued only "after consultation with the secretary of transportation regarding the safety" of such systems. Furthermore, Section 202 (a)(4) provides that "no emission control device ... shall be used ... if such device will cause or contribute to an unreasonable risk to public health, welfare or safety ..."

Onboard fuel vapor recovery would pose exactly such a risk. Thus, if EPA were to follow the law, as it should, it would not issue regulations requiring onboard systems until completely safe onboard technology had been developed. But in this case, the EPA and Mr. Bliley are pushing not only for an unwise regulation but for a dangerous one.

AUG 1 1991

RICHMOND, VA:...

TIMES-DISPATCH

M - 139,450

S - 240,863

Thomas J. Bliley Jr.

Safety Comes First in Choosing Method to Recover Fuel Vapors

A JULY 22 Times-Dispatch editorial, "Vaporizing Safety," concerning the use of onboard devices for the recovery of automobile emissions may have left readers with a distorted view of my position on the matter.

As the editorial correctly pointed out, hydrocarbon emissions are the leading cause of smog. One of the largest sources of uncontrolled emissions of hydrocarbons are gasoline vapors from automobiles. There are two ways of preventing this pollution: (a) onboard vapor recovery canisters attached to cars and (b) Stage II control systems designed for fueling stations. In 1977 Congress mandated the Environmental Protection Agency to assess the feasibility of onboard canisters and make a determination regarding their future use. Clearly, Congress felt that canisters would prove to be the most efficient and effective means for capturing vapors.

Following that directive, the carmakers spent nearly a decade using legal procedures to prevent use of the canisters, from becoming reality, arguing first that it was uneconomical, second that it was inefficient, and third that it was undesignable. It was not until 1986, when all of these other arguments had been exhausted, that the carmakers raised the issue of safety.

Onboard canisters are not a radical engineering concept. The canister technology is merely an extension of the evaporative emission container that has been used on cars since 1971 to collect vapors normally emitted from the car's fuel system. Extensive crash tests of vehicles, both with and

without onboard canisters, have failed to turn up any correlation between onboard canisters and increased fire risks. In fact, the National Highway Traffic Safety Administration stated in a 1990 study that "crashes with fires are relatively rare" and "older vehicles are more likely to experience fire, given a crash."

Every motorist is well aware that there is some inherent risk with a car's fuel system. Gasoline is very flammable, whether it is in the gas tank or in a fuel line. To ensure that this risk is not unreasonable, NHTSA is required to reduce the risk of fire by routinely assessing the integrity of the fuel system through Federal Motor Vehicle Safety Standard 301. It was my hope that NHTSA would use its expertise to help make sure that upgrading in the onboard canister system did not pose an unreasonable risk to motorists. In fact, I was the sponsor of the amendment to the 1990 Clean Air Act that ordered EPA to consult with this safety agency. I was the author of the very language the editorial referred me to. Contrary to the position taken by your editorial, I was working to make sure that there was a definitive role for NHTSA to play in this issue.

In the 1990 Clean Air Act Amendments, Congress clearly mandated the use of onboard canisters as a nationwide pollution prevention tool provided they did not pose an unreasonable risk to the public. Both methods show similar design efficiencies. Depending on whether you believe the oil or auto industry's numbers, the



Bliley

canister's operational effectiveness ranges between 83 and 98 percent, while Stage II performance levels can fall below 50 percent absent aggressive state inspection programs but probably range somewhere between 62 and 92 percent.

Canisters are also the more cost-effective, long-term solution. EPA estimates that onboard canisters should add an additional \$32 per car, while a Stage II requirement would cost a gasoline marketer from \$24,000 to \$36,000 per station. Contrary to the impression left by your editorial, there is more to Stage II than the nozzle. The real cost comes from underground piping leading to huge underground storage tanks that must be installed at each location. And this cost would have an immediate impact on hundreds of small businesses. Last year the typical small-business/

convenience store owner had a pre-tax profit of \$26,000. An unnecessary Stage II requirement, combined with the new underground storage tank regulations, would force many small station owners out of business. Ultimately, this would provide less competition by leaving only the major oil companies in business, which in turn would lead to higher gasoline prices for the public. There is also a direct cost to the taxpayer because effective enforcement of Stage II will require extra state agency personnel to conduct the proper inspection.

If the onboard refueling canister had been implemented 14 years ago after it was first discussed by Congress in the 1977 amendments to the Clean Air Act, we would already be breathing cleaner air and saving billions of dollars. Despite the high cost and potential job loss, in 1990 Congress mandated the installation of Stage II in the most serious and severe smog areas in the country because Stage II would provide an immediate, large reduction in pollution. In the less threatened areas Congress decided that Stage II controls would not be necessary if the more efficient, cost-effective onboard canisters were found not to pose an unreasonable risk to the public.

On May 21, 1991, I wrote EPA Administrator William K. Reilly to remind him that his agency had one year to settle this question. It was my fear that with so many other deadlines facing EPA, he would relax his efforts in the face of endless high-pressure lobbying on the part of the carmakers. I urged him to act in a

timely fashion so that small businesses and consumers would not be unnecessarily hurt by the carmakers' unwillingness to design and produce a valuable and effective clean air tool. That was my goal, nothing more, nothing less.

In response to my letter Mr. Reilly assured me that he plans to take the proper course of action. He wrote: "We [the EPA] consider that Congress mandated the promulgation of onboard standards and that the only possible exception to this mandate would need to be based on a determination that onboard systems would inherently pose an unreasonable risk to public safety. We [the EPA] state that if DOT [the Department of Transportation] believes onboard systems cannot be made acceptably safe, it must make a specific and definitive finding to EPA quickly given the pending statutory deadline." Administrator Reilly went on to write: "In accordance with this understanding, my staff is proceeding with the rule making, including the safety consultation."

I have long held that onboard canisters are a promising, clean air technology that should be pursued but that safety must first be considered in any determination regarding their use. It is my hope that the appropriate federal agencies will finally get to the task at hand and bring to a close a 14-year decision-making process.

(Thomas J. Bliley Jr. represents Virginia's 3rd District in the U.S. House of Representatives.)



U.S. Department
of Transportation

National Highway
Traffic Safety
Administration

The Administrator

400 Seventh St., S.W.
Washington, D.C. 20590

FEB 27 1991

The Honorable William K. Reilly
Administrator
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Dear Mr. Reilly:

The Clean Air Act Amendments of 1990 contain a requirement that the Environmental Protection Agency and the Department of Transportation consult on the safety risks associated with onboard refueling vapor recovery. Our staffs have discussed the safety implications of these systems, and I would like to provide you with an update as our safety evaluations and consultations continue.

The last formal communication between our agencies regarding onboard refueling vapor recovery was by our letter dated July 10, 1989, transmitting the final draft of the study performed by Arthur D. Little (ADL) for this agency. This study concluded that there were unresolved safety risks with onboard refueling vapor recovery systems that could not be resolved until the experimental onboard systems then available were adapted to a wider range of vehicles and these vehicles tested under severe environmental conditions.

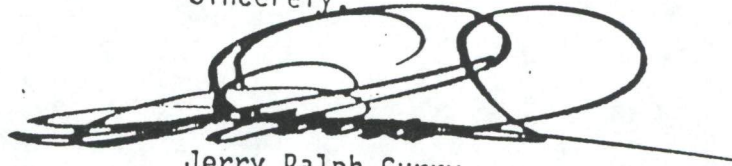
Over the past several months, our staffs have met several times to discuss how our agencies will cooperate in this effort. As a result of these meetings, the National Highway Traffic Safety Administration has written to a number of vehicle manufacturers to obtain information regarding any currently available onboard equipped vehicles. Based on an initial review of responses from manufacturers, it appears that onboard equipped vehicles meeting both the new enhanced evaporative and tailpipe emissions requirements are not available. Consequently, the testing program recommended by ADL is premature.

Based on the ADL study and the fact that additional investigations and recalls have occurred in existing vehicles since the ADL study was released, our safety concerns remain. These concerns relate principally to underbody and engine compartment heat, canister breakthrough, and crash integrity.



Accordingly, we continue to be apprehensive about the safety of onboard systems. We note that the amendments to the Clean Air Act provide for the adoption of Stage II controls at filling stations in many nonattainment areas. From the standpoint of safety, these controls offer advantages over onboard controls, as well as presenting a means for quickly and efficiently reducing refueling emissions.

Sincerely,

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke at the end.

Jerry Ralph Curry



U.S. Department
of Transportation

National Highway
Traffic Safety
Administration

The Administrator

400 Seventh St., S.W.
Washington, D.C. 20590

JUL 24 1991

Mr. William G. Rosenberg
Assistant Administrator for
Air and Radiation
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Dear Mr. Rosenberg:

In June, Secretary Samuel K. Skinner and I wrote to Administrator Reilly concerning the safety of onboard refueling vapor recovery systems and the statutorily-required consultation between the Environmental Protection Agency (EPA) and the Department of Transportation (DOT) on this issue. My letter indicated that the National Highway Traffic Safety Administration's safety assessment of onboard safety would be completed in July.

We have completed the safety assessment and I would like to personally brief you on our conclusions as soon as possible. Please have someone in your office contact Bill Boehly, Associate Administrator for Enforcement, at 366-9700 to set up a briefing date.

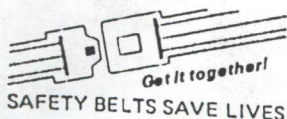
I look forward to hearing from you.

Sincerely,

Jerry Ralph Curry

*Your thoughts will be helpful
to us.*

*Meeting will take place in
early Sep.*





THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

June 18, 1991

The Honorable William K. Reilly
Administrator
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Dear Bill:

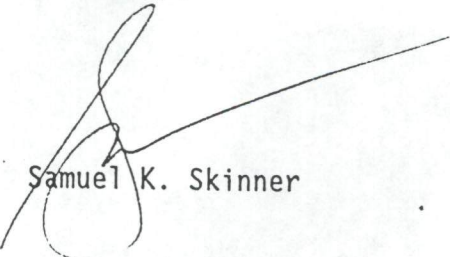
Thank you for your letter concerning the vehicle refueling emission control rulemaking process. As you noted, the principal issue is the safety of onboard refueling vapor recovery systems and the statutorily-required consultation between EPA and DOT on this matter.

I fully recognize the importance of EPA's rulemaking proceeding and the role my Department plays in it. Consistent with the Department's National Transportation Policy, in addressing this issue, we must ensure that our approach both maintains the public safety of our transportation system, and protects the Nation's environment and quality of life.

The Administrator of the National Highway Traffic Safety Administration, Jerry Ralph Curry, will provide a detailed technical response to the topics raised in your letter. I have asked General Curry to keep me and my staff fully informed of the progress of the analysis.

You can count on our making a quick determination regarding the safety of onboard systems.

Sincerely,



Samuel K. Skinner



U.S. Department
of Transportation

National Highway
Traffic Safety
Administration

Administrator

400 Seventh Street, S.W.
Washington, D.C. 20590

JUN 17 1991

The Honorable William K. Reilly
Administrator
U.S. Environmental Protection Agency
401 M Street, SW.
Washington, D.C. 20460

Dear Mr. Reilly:

Secretary Skinner has advised me that he will be responding to your May 7, 1991, letter in the near future. In his response, he will point out that detailed Departmental comments will be forthcoming from the National Highway Traffic Safety Administration. To assist the Environmental Protection Agency in its efforts to implement rulemaking responsibilities, this letter provides the initial part of the more detailed response.

As advised on February 27, 1991, the National Highway Traffic Safety Administration (NHTSA) continues to have concerns about the fundamental risk to public safety posed by current onboard systems. Therefore, the safety of onboard systems continues to be carefully studied by NHTSA, and we continue to expand our analysis of the safety risks associated with such onboard systems.

In addition to our own efforts and analysis, a comprehensive request for new information on onboard systems has been sent to eight vehicle manufacturers. Complete responses from all manufacturers have yet to be received, but one thing has become clear. The manufacturers we have heard from do not have a production-ready onboard system in being.

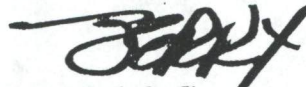
Until such systems are developed, objective tests and performance levels which can be used to assess the safety of onboard systems can only be theoretically constructed. Therefore, it appears premature to specifically and definitely certify onboard systems as safe at this time.

Still, we continue to actively gather and update information from safety defect investigations and manufacturer recalls pertinent to onboard systems. Additionally, we are analyzing real world crash data to determine fire incidence rates before and after the installation of current fuel evaporation recovery canister systems. Finally, we are reviewing available laboratory crash test data to determine the frequency of fires and loss of integrity to existing canister systems.

Because onboard systems present potential safety risks, the agency intends to make its reassessment as thorough and well-documented as possible. The report on NHTSA's reassessment will be completed and made available to you in July, at which time you will be able to employ it in making the regulatory decision you are directed to make by the Clean Air Act.

Congress intended EPA to make this decision through a rulemaking process in which the safety of onboard was to be determined before the issuance of a rule mandating such systems. This requires notice and comment, and does not permit an agency to ignore legitimate justifications for terminating the rule. As Congress itself established the rulemaking process, it understands that such a possibility of rulemaking termination exists.

Sincerely,

A handwritten signature in black ink, appearing to read "Jerry Curry", with a stylized flourish at the end.

Jerry Ralph Curry

cc: The Honorable Samuel K. Skinner, Secretary of Transportation
The Honorable Richard G. Darman, Director, Office of Management and Budget



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

MAY 7 1991

THE ADMINISTRATOR

The Honorable Samuel K. Skinner
Secretary
Department of Transportation
400 7th Street, SW
Washington, DC 20590

ACTION	
Is assigned to	
NHTSA	
CONTROL NO.	
910509-027	
SIMS	S-10

Dear Sam:

I am writing to provide the Environmental Protection Agency's (EPA) understanding of the Department of Transportation's (DOT) role in the vehicle refueling emissions control rulemaking process. As you know, the amendments to the Clean Air Act direct EPA, after consultation with the Secretary of Transportation, to promulgate within one year standards requiring vehicle-based "onboard" controls.

The key issue for this rule has been, and continues to be, the safety of onboard systems. Congress recognized this in explicitly directing EPA to consult with the Department of Transportation regarding onboard system safety before promulgating the rule. This consultation is, of course, a continuation of the extensive discussion on the topic that has taken place between EPA and National Highway Traffic Safety Administration (NHTSA) in the past. Most recently, members of my staff have met with your key staff at NHTSA to discuss the rulemaking schedule facing EPA and details of the consultation process.

As part of the consultation process, we are looking to you and your staff to advise us on the safety of onboard systems. It was our understanding that NHTSA staff was preparing an updated assessment of onboard system safety. We informed NHTSA staff of our intent to solicit public comment on their assessment during the course of the continuing rulemaking proceeding.

9105100002

We received a letter from Mr. Jerry Curry, Administrator of NHTSA, dated February 27, 1991 in which he reiterates NHTSA's concerns about the safety of onboard systems. The letter does not state whether this correspondence is meant to be NHTSA's re-assessment of onboard safety. In any case, in our opinion, it is not a definitive finding of the safety of onboard systems. Let me provide you with our views on the necessity and nature of a definitive finding by DOT.

It seems to us there are three possible outcomes of your assessment. First, you could find that onboard systems can be installed on vehicles without degrading safety. Second, you could find that onboard systems are inherently unsafe and should not be installed on vehicles. Third, you could find that onboard systems can be safe or unsafe depending on design features and that, as part of the onboard system implementation process that would follow the mandated onboard rule, NHTSA and EPA should take specific steps to insure the actual systems designed and installed by the vehicle manufacturers are in fact safe.

As I mentioned at the outset of this letter, Congress has directed EPA to promulgate regulations requiring the installation of onboard controls, after consultation with the Secretary of Transportation concerning their safety, within one year of the enactment of the Clean Air Act Amendments of 1990, i.e., by November 15, 1991. The only possible exception to this mandate would need to be based on a determination that onboard systems would inherently pose an unreasonable risk to public safety. As the Department responsible for motor vehicle safety, we expect DOT to make a definitive finding about the safety of onboard systems upon which the required determination could be based. Congress expected a safety determination to be made expeditiously, and certainly to occur before the date mandated for issuing regulations. H. Rep. No. 101-490, 101st Cong. 2d Sess. 303 (1990). If DOT believes that onboard systems cannot be made acceptably safe, it must make a specific and definitive finding to EPA quickly given the pending statutory deadline.

Handwritten note: "Wanted for 156 to May to ask for..."

We greatly appreciate the cooperation that DOT staff members have shown in expediting the resolution of this issue.

Sincerely yours,



William K. Reilly

9105100002

GAO

United States General Accounting Office

Report to the Chairman, Subcommittee
on Oversight and Investigations,
Committee on Energy and Commerce,
House of Representatives

June 1991

AIR POLLUTION

New Approach Needed to Resolve Safety Issue for Vapor Recovery Systems



The Clean Air Act Amendments of 1990 require EPA to consult with NHTSA on the safety of onboard systems. Since passage of the amendments, EPA and NHTSA have met to discuss NHTSA's safety concerns. Nevertheless, as of June 1991, the agencies have not developed an approach to resolve their differences.

Without such an approach, EPA and NHTSA have not defined their roles or agreed on the information and analysis needed to address the safety concerns. After consultation with NHTSA in January 1991, EPA expected NHTSA to provide a detailed safety analysis of onboard systems. In response, NHTSA restated its earlier position without additional analysis.

In May EPA requested NHTSA to provide further analysis on its safety concerns. NHTSA, however, has been reluctant to do so because it typically does not test vehicle components until they are installed on cars. NHTSA says it cannot quantify the safety risk associated with onboard systems until manufacturer-produced systems are available. NHTSA also maintains that meaningful testing can be done only on manufacturers' onboard-equipped vehicles that will meet the 1994 federal tailpipe emission standards.

Future Regulations Raise Similar Concerns

Over the next decade, the auto industry will be required to make various changes under provisions of the Clean Air Act Amendments. Requirements such as the use of alternative fuels for motor vehicles could raise safety concerns similar to those for onboard systems.

While the use of alternative fuels will not be required for several years, industry and interest group representatives believe that EPA and NHTSA need to have an action plan in place for addressing safety-related concerns. In discussions with EPA and NHTSA officials, GAO found that no such plans are being formulated.

Recommendations

GAO recommends that the Administrator of EPA go forward with the onboard regulation by November 1991 as required by the Clean Air Act Amendments of 1990 unless EPA determines that onboard systems pose an unreasonable risk to public safety. GAO also recommends that the Administrator of EPA, and that the Secretary of Transportation direct the Administrator of NHTSA to, develop a joint approach, or action plan, to perform a safety evaluation of manufacturers' onboard systems to identify and correct any safety defects or flaws well in advance of the 1996 model year so that an orderly phase-in occurs. As part of the plan,

GAO recommends that EPA and NHTSA work with the automobile industry during the 4 years between promulgation of the regulation and the phase-in of onboard systems called for by model year 1996. At a minimum, this plan should identify the roles and responsibilities of each agency, the safety tests and analysis to be performed, what the analysis will accomplish, and the time frames for performing the analysis.

Agency Comments

GAO discussed the factual information in this report with EPA and NHTSA officials, and the officials generally agreed with the facts presented. We incorporated their comments where appropriate. However, as requested, GAO did not obtain official agency comments on a draft of this report.

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August 14, 1991

ERIKA Z. JONES
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Jeffrey R. Holmstead, Esq.
Associate Counsel to the President
The White House
Washington, D.C. 20500

Re: Onboard Vapor Recovery Systems

Dear Mr. Holmstead:

Knowing of your interest in the subject, I am enclosing a copy of the recent NHTSA safety assessment of onboard vapor recovery systems. It clearly confirms the industry's view that onboard vapor recovery systems will increase the risk of fire in motor vehicles.

I am also enclosing a white paper recommending an approach for the next steps in this matter.

We appreciate your continued interest in this issue.

Sincerely yours,



Erika Z. Jones

enclosures

ONBOARD REFUELING VAPOR RECOVERY SYSTEMS
DIGEST OF PROPOSED EPA DECISION

I. Summary

This notice reports the determination of the Environmental Protection Agency ("EPA" or "the Agency") not to require vehicle-based systems for the control of vehicle refueling emissions. This decision is required under Sections 202(a)(6) and 202(a)(4) of the Clean Air Act, pursuant to the Agency's determination, based upon consultation with the Department of Transportation ("DOT") and the public comments, that onboard vapor recovery systems will unreasonably increase motor vehicle safety risks.

II. Background

In November 1990, the President signed the Clean Air Act Amendments of 1990. These amendments direct EPA to consult with the Secretary of Transportation about the safety of onboard refueling vapor recovery ("onboard" or "ORVR") control systems before issuing standards requiring such systems. Congress directed that the safety consultation and rulemaking be completed within one year of enactment of the amendments.

In compliance with the statutory direction to consult on the safety issue, the National Highway Traffic Safety Administration ("NHTSA," the expert vehicle safety agency within DOT) produced a comprehensive assessment of the safety issue in July, 1991. EPA sought public comments on the NHTSA safety assessment, and conducted a public hearing in which the safety issues were explored thoroughly.

The last prior formal action of the Agency, in this matter, was its August 19, 1987 notice of proposed rulemaking. In that document, the Agency stated that "[i]t is EPA's belief that no increase in overall safety risk should be accepted because of the presence of onboard control systems."

III. ORVR Systems Present an Unreasonable Risk to Safety

NHTSA, various other public and private safety groups and motor vehicle manufacturers' have raised concerns about the safety of canister-based ORVR systems for several years. Others have commented that ORVR systems represent little or no safety risk. These views were well known to the members of the Congressional subcommittee that authored the 1990 amendment of Section 202(a)(6) which required consultation with DOT/NHTSA regarding onboard safety.

The Agency has carefully considered the NHTSA safety assessment as well as other public comments. Among the findings of the NHTSA assessment are the following:

Under certain conditions representative of the motor vehicle crash and operating environment, ORVR refueling vapor recovery systems would result in a substantial increase in fire potential. These occurrences result in an increased safety risk and hence would have a negative impact on safety.

. . .

The complexity of [ORVR] systems and data indicating that fire risks will increase with ORVR systems lead to the conclusion that ORVR systems will result in an increase in safety risk and thus have a negative impact on safety.

NHTSA found those risks to be inherent and irreducible in any canister-based onboard design. NHTSA identified failure modes "due to design, manufacture, or assembly errors, as well as damage, improper servicing, or deliberate disconnection through tampering." Those factors, among others, were determined by NHTSA to create "operational safety concerns" and "an increased safety risk."

EPA concludes that requiring canister-based ORVR systems would present an unreasonable risk to safety for the following reasons. First, it is clear to EPA that NHTSA's findings are comprehensive, empirical and well-documented, as well as being consistent with most other public comment on this issue. NHTSA's report is based on a combination of sources, including laboratory testing, data analysis of the experiences of analogous systems and the performance of prototype ORVR systems. In light of NHTSA's Congressionally chartered expertise in vehicle safety matters, and the thoroughness with which NHTSA prepared this report, the NHTSA conclusions are entitled to substantial weight.

Second, the risk identified by NHTSA is not de minimis or speculative. Although NHTSA could not provide precise quantification of increased numbers of vehicle fires or associated injuries, NHTSA unequivocally concluded that "fire risks will increase" with ORVR systems. Consistent with general principles of risk assessment, which deem even a low frequency event to present an unreasonable risk if the consequences are severe when the event occurs, it is reasonable to conclude that the consequences of vehicle fires are severe. As NHTSA's report stated, "Although relatively rare, . . . the occurrence of a fire greatly increases the risk of injury." (Emphasis added.)

IV. The Agency's Decision is Consistent with the Clean Air Act and Congressional Intent

Having concluded that ORVR systems present an unreasonable risk to safety, the Agency must proceed in a manner that gives full effect to the statute and Congressional intent. The Agency has examined the language of Section 202(a)(6), other provisions of Section 202 and the Clean Air Act, as well as statements of Congressional intention in enacting the 1990 amendments.

First, the plain language of Section 202(a)(6) makes it clear that Congress expected EPA to consider NHTSA's conclusions about the safety of ORVR systems before requiring them. Because Congress cannot be presumed to have required a meaningless consultation on safety, the DOT/NHTSA safety advice required by Section 202(a)(6) is integral to the Agency's decision whether to proceed to require vapor recovery systems.

Second, Section 202(a)(4) of the Clean Air Act, a provision that was unchanged by the 1990 amendments, imposes a separate duty on EPA to decline to require ORVR systems that present an unreasonable safety risk. Because NHTSA has found that canister-based onboard systems involve a substantial and irreducible risk of fire, and because Stage II systems are safe, the installation of any canister-based onboard design would be an unreasonable risk.

Finally, the legislative history amply supports the Agency's interpretation that Congress expected EPA to decline to require ORVR systems if they were unreasonably unsafe. The report of the subcommittee which authored the amendment to section 202(a)(6) specifically added the condition of a prior DOT safety assessment, notwithstanding the advice of subcommittee counsel that section 202(a)(4) would preclude the Agency from mandating unsafe ORVR systems, because, as stated in their accompanying report, "[n]o one wants a rule that requires [ORVR] controls for consumers that present safety problems."

Although Section 202(a)(6) specifies a rulemaking deadline of November 1991, the deadline cannot reasonably be construed to require EPA to contradict other, express wishes of Congress. In light of the Agency's conclusion that a mandate for canister-based ORVR systems would present an unreasonable risk to safety, promulgation of a rule in November 1991 would arbitrarily ignore the results of the safety consultation required under Section 202(a)(6) and would be inconsistent with Section 202(a)(4) and express Congressional intent.

Subsequently, if EPA should become aware of new ORVR technology, EPA would consult with DOT/NHTSA as to the safety of the technology, as required by law. If the agencies agree that the new technology would not increase the risk to motor vehicle safety, Section 202(a)(6) directs EPA to promulgate standards phasing in the safe ORVR systems on new passenger cars, consistent with the statutory lead time provisions.

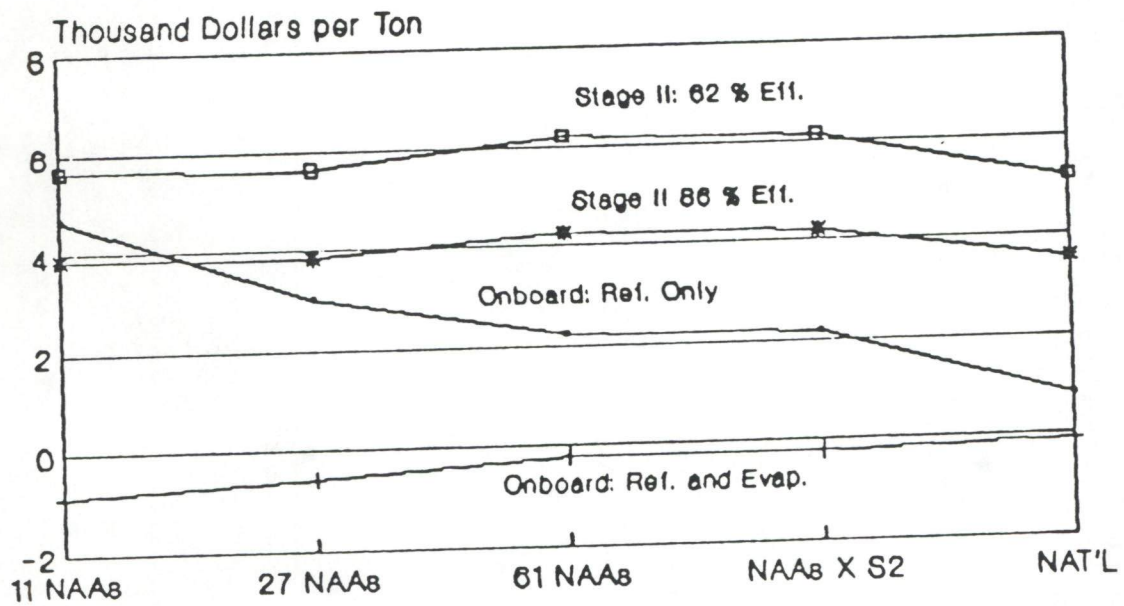
The Agency's interpretation of its obligations under Section 202(a)(6) is consistent with the requirement elsewhere in the 1990 Clean Air Act amendments that refueling emissions must be controlled by Stage II controls in areas classified as moderate (or worse) for ozone nonattainment. If Congress had intended to require EPA to issue an onboard mandate, regardless of the outcome of the safety consultation, there would have been no need to provide for the alternative means of controlling the same emissions.

The Agency's solution to the issues before it today preserves both the Congressional interest in vehicle safety, and its intent to control refueling emissions promptly and effectively. In accordance with the Administration's original proposed Clean Air bill, Section 182(b)(3) of the Clean Air Act Amendments of 1990 mandate deployment of Stage II refueling emissions controls on gasoline pumps in all ozone nonattainment areas rated as moderate, serious, severe or extreme. The Stage II strategy is the safest and most cost-effective solution to the nation's refueling control needs. With respect to safety, specifically, the NHTSA report notes the "unanimous conclusion that Stage II has a lower risk of service station fires than existing gasoline pumps."

V. Conclusion

The Agency has concluded, based upon the DOT safety assessment and the entire rulemaking record, that a mandate for ORVR systems would be unreasonable at this time, under the plain meaning and intention of Sections 202(a)(4) and 202(a)(6).

Comparative Cost Effectiveness Stage II vs Onboard 1988 - 2020



Here file:
CHA - Onboard

The Benefits of Onboard Refueling Emissions Control

BENEFITS OF ONBOARD REFUELING CONTROL

- Control of Gasoline Vehicle Refueling Emissions via enhancement of existing evaporative emission control system
 - is more cost-effective than alternatives
 - provides greater control efficiency
 - allows broader approach to VOC controls
 - is "consumer-friendly"
- Disadvantages are implementation time and safety concerns

ONBOARD CONTROL BACKGROUND

- Use of carbon canister evaporative emission control technology successfully introduced in 1970-1971
 - trapped emissions from "hot-soak" and diurnal "breathing" of fuel tanks
 - remains basis of federal emission control strategy for non-exhaust vehicle emissions
- Consideration of system expansion to collect refueling vapors began in mid-to-late 1970's
 - 1977 Clean Air Act required EPA to study and issue regulations
 - running losses emerge as a factor in late-80's

REGULATORY ACTIVITY

- In 1987, EPA published Proposed Regulations in Federal Register, requiring use of onboard technology to control refueling emissions
 - comment period produced technical and economic data from affected parties; auto industry raised safety issue in 1988
 - Proposed Regulation remains on EPA Agenda; Final Rule delayed pending internal Administration resolution

LEGISLATIVE ACTION

- 1990 Clean Air Act Amendments require onboard controls
 - "within one year of enactment" --
 - "Administrator shall, after consultation with the Secretary of Transportation regarding the safety of--('onboard') systems" -- "promulgate standards-- requiring that--light duty vehicles--be equipped with such systems"

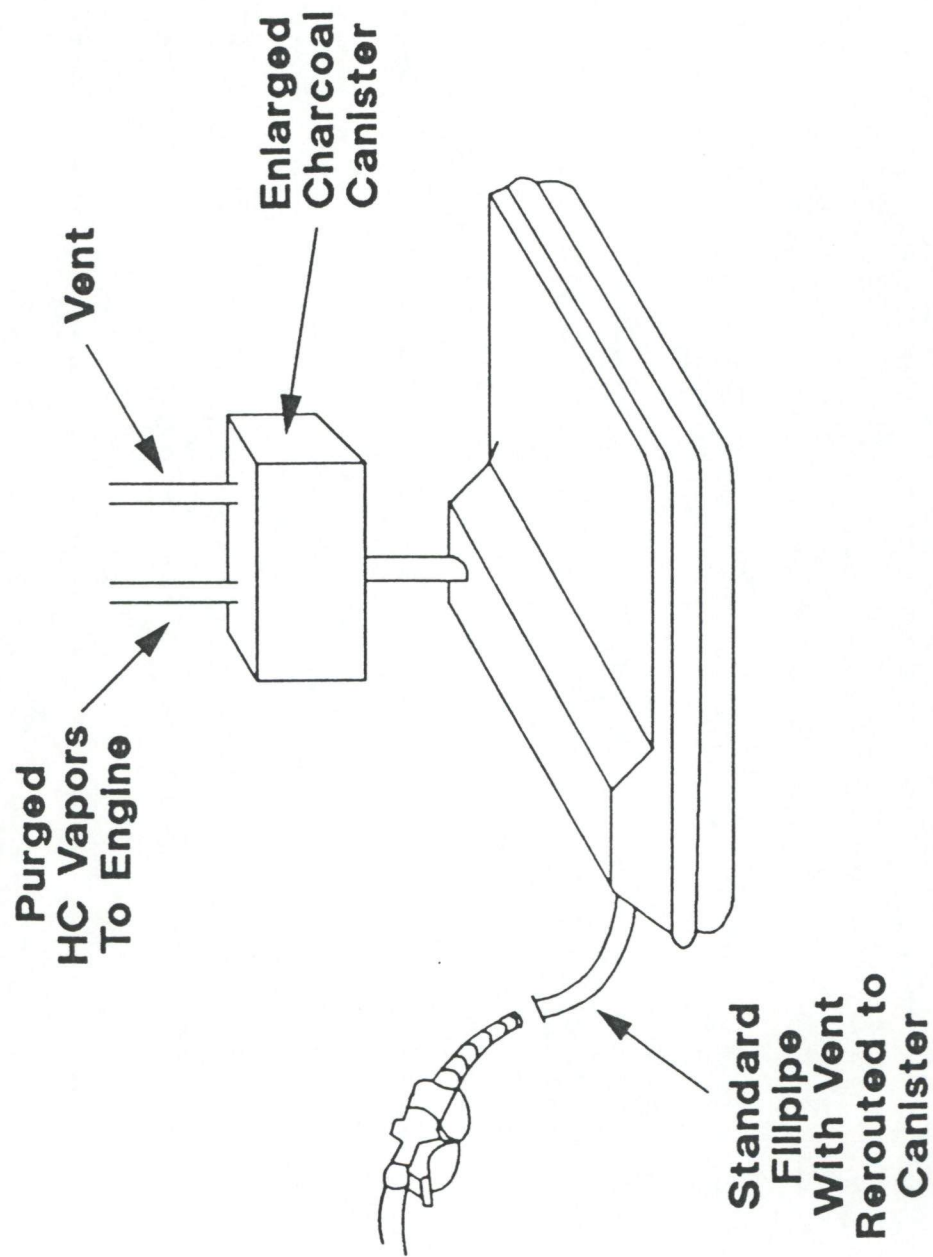
LEGISLATIVE IMPLEMENTATION SCHEDULE

- Increasing percentage of new cars required to use:

Model Year After Standards <u>Promulgated</u>	<u>Percentage, %</u>
Fourth	40
Fifth	80
After Fifth	100

- Minimum capture efficiency of 95%
- Stage II requirements for moderate ozone areas would not apply after onboard promulgation
- Stage II requirements may be moderated elsewhere, at Administrators' discretion, when onboard is in widespread use

PRINCIPAL ELEMENTS OF ENHANCED ONBOARD SYSTEM



AUTOMOTIVE EMISSIONS

<u>Source</u>	<u>g/mi</u>
Exhaust	0.41
Evaporative	0.13
Running	(EPA Est. ~0-1.2)
Refueling	0.2-0.3

EMISSION RESULTS

Car No. 1, 1988 Ford Taurus

	<u>Base Vehicle</u>	<u>Onboard</u>
Exhaust HC	0.18 g/mi	0.14 g/mi
Evaporative HC	0.22 g/test	0.77 g/test*
CO	1.38 g/mi	1.08 g/mi
NOx	0.39 g/mi	0.42 g/mi
Refueling	4.95 g/gal	0.05 g/gal

*Base configuration is pressurized fuel tank

EMISSION RESULTS

Car No. 2, 1987 Buick LeSabre

	<u>Base Vehicle</u>	<u>Onboard</u>
Exhaust HC	0.28 g/mi	0.27 g/mi
Evaporative HC	0.58 g/test	0.43 g/test
CO	2.07 g/mi	1.50 g/mi
NOx	0.28 g/mi	0.25 g/mi
Refueling	4.86 g/gal	0.05 g/gal

RUNNING LOSSES EMISSIONS, g/mile

	<u>Base Vehicle</u>	<u>Onboard</u>	<u>Control</u>
Ford Taurus	3.15 g/mi	0.09 g/mi	97%
Buick LeSabre	0.51 g/mi	0.05 g/mi	90%

TECHNICAL ADVANTAGES

- One canister controls both emission sources
- Canister repositioned from engine compartment to frame
- Shorter vapor lines, fewer tank penetrations, use of liquid seal
- Fuel tank at atmospheric conditions, no longer pressurized
- Excellent emission control, including running losses

ECONOMIC AND TEMPORAL CONSIDERATIONS

	<u>Cost/Unit</u>	<u>Cost-Effectiveness</u>
Onboard Control	~ \$20/car	\$800/ton
Stage II	~ \$35,000/station	\$2000-3000/ton

- Onboard phase-in at 10-12% year; 8 years for effective coverage; max efficiency, 95 + %
- Stage II requires 2 years after approved SIP to complete installation in designated areas; in-use efficiency experience is 70-90%
 - smaller facilities (< 10k gal/mo) exempted; EPA estimates 10-15% of gasoline sales

CONCLUSIONS

- Final Clean Air Act requires EPA to complete onboard regulations by mid-November, 1991
 - after consultation with DOT
- Implementation of Stage II controls in ozone nonattainment areas will continue; requirements can be moderated as onboard controls become effective
- Onboard technology demonstrated to be feasible, effective and economic