81-02-28

II-96-01

II-A-1062

Helen O. Petrauskas
Director
Automotive Emissions and
Fuel Economy Office
Environmental and Safety
Engineering Staff

Ford Motor Company
The American Road
Dearborn, Michigan 48121

April 24, 1981

Director, Standards and Regulations Division
U. S. Environmental Protection Agency
Washington, D.C. 20560

Attention: ONAC Docket 81-02 (Medium and Heavy Trucks) ANR-490

Dear Sir:

Ford Motor Company (Ford), a domestic manufacturer of medium and heavy trucks, hereby submits comments in response to the Administrator's invitation contained in the preamble to the amendments to 40 CFR §205.52 and §205.202 published at 46 Fed. Reg. 8497 (January 27, 1981) and in the request for additional comments published at 46 Fed. Reg. 17558 (March 19, 1981). In those notices the Administrator requested comments on whether the 80 dB(A) noise standard for medium and heavy trucks should be deferred beyond January 1, 1982, or, indeed, should be rescinded.

The U.S. motor vehicle industry is in a critical state of depression at this time. This is caused by many factors, including the increasingly large share of U.S. sales claimed by imports from Japan, exceedingly high interest rates and skyrocketing inflation, recession, and excessive government regulations.

Total U.S. retail sales of trucks over 10,000 lbs. GVW by domestic manufacturers in 1980 were 241,500 units - off 38% from the 1979 total of 390,000 units, and off 45% from the 1978 level of 439,800 units. The heavy truck market has been depressed by general economic conditions and further aggravated by higher truck prices that have resulted because of inflation, rising production, material and labor costs, including the ever-increasing cost of complying with government regulations.

The industry needs help to stimulate sales. One positive action would be to reduce the cost of buying and maintaining vehicles. For medium and heavy trucks this goal can be aided by dropping the 80 dB(A) noise standard. Compliance with the 80 dB(A) standard requires the use of components such as chassis and engine

shields which hinder maintenance, increase weight (and thereby increase fuel consumption), and increase cooling requirements. In addition, we believe that "non-functional" components such as chassis and engine shields will in many cases not be replaced after the vehicles' first maintenance.

The initial cost of meeting the 80 dB(A) standard on Ford trucks ranges from $166 to $1130 on different models. This initial cost projected over U.S. industry anticipated volumes amounts to $246 million in 1983, increasing to $267 million in 1990. In addition, MVMA estimates of the incremental annual maintenance cost associated with the 80 dB(A) standard amounts to $44 million in 1983, increasing to $56 million in 1990. Through the year 2000 (the 17 year period during which we expect 90% of the existing truck fleet to be replaced), the combined additional cost of the 80 dB(A) standard (initial cost, fuel and maintenance) is estimated to exceed 12 billion dollars.

Ford believes that there is little community benefit to be gained by implementing an 80 dB(A) standard. An EPA analysis on resulting noise levels (detailed in our comments) shows that truck noise passby levels would drop by only an imperceptible 1.2 dB(A) in going from the 83 dB(A) standard to the 80 dB(A) standard. This same analysis shows that the reduction in passby noise was about ten times greater when going from unregulated to 83 dB(A)-regulated trucks. An MVMA analysis, performed by Battelle Columbus Laboratories, indicated that the 80 dB(A) standard would result in a 6% reduction in overall population exposure to Ldn55, compared to the 9% reduction gained in going from unregulated trucks to the 83 dB(A) standard. Ford believes that a reduction which at great cost would at most benefit only 6% of the nations' population — evaluated against a conservative and controversial measure (Ldn55) — is not in the public interest.

Ford, as a member of the Motor Vehicle Manufacturers Association of the United States, Inc. (MVMA), has participated in the preparation of MVMA's comments on these contemplated changes to the regulation and incorporates them herein by reference.

Ford recommends that the 80 dB(A) standard be dropped. We believe that the Administrator is empowered to implement this recommendation, which we believe would be in the best interests of all concerned.

These comments constitute Ford's response to Docket ONAC 81-02. Should additional substantive information on this matter become available in the near future, a supplemental response will be submitted.

Sincerely,

H. O. Petrauskas

Attachment

## MEDIUM AND HEAVY TRUCKS

### Deferral of Effective Dates and Request for Additional Comments

### Comments of Ford Motor Company

#### NEED FOR 80dB(A) STANDARD

Ford believes that there is little benefit in terms of overall community noise exposure and passby noise level to be gained by retention of the 80 dB(A) standard. An EPA analysis (detailed below) shows that truck noise passby levels would drop by only an imperceptible 1.2 dB(A) in going from the 83 dB(A) standard to the 80 dB(A) standard, compared to a drop ranging from 9.1 to 13.1 dB(A) when going from unregulated trucks to 83 dB(A) regulated trucks. The following table, taken from EPA background document 550/9-76-008, shows the minimal incremental benefit which would be gained by enforcement of the 80 dB(A) standard, even according to EPA's figures.

Percentile Noise Levels for Individual Truck Passbys
(Ref: Page 4-37, Table 4-20)

| Truck Type | Percentile Passby Noise Levels | | | |
|---|---|---|---|---|
| | $L_{50}$ | $L_{10}$ | $L_1$ | $L_{0.1}$ |
| Existing Trucks | 83.5 dBA | 88.2 dBA | 91.8 dBA | 94.9 dBA |
| 83 dB(A) Regulated Trucks | 77.2 dBA | 79.1 dBA | 80.5 dBA | 81.8 dBA |
| 80 dB(A) Regulated Trucks | 76.0 dBA | 77.9 dBA | 79.3 dBA | 80.6 dBA |

It should be noted that going from the unregulated environment to 83 dB(A) regulated trucks dropped the L10, L1, and L0.1 (10%, 1%, and 0.1% percentile trucks) noise levels 9.1 dB(A), 11.3 dB(A), and 13.1 dB(A) respectively. Additional regulation to 80 dB(A) drops the L10, L1, L0.1 levels only an additional 1.2 dB(A), 1.2 dB(A), and 1.2 dB(A) respectively. Clearly, the first regulation of 83 dB(A) was much more effective than the additional regulation of 80 dB(A).

#### COST AND PRODUCT IMPLICATIONS

Dropping the 80 dB(A) standard would remove a significant financial burden from medium and heavy truck purchasers, while resulting in only insignificant loss of community noise benefit. Additional maintenance costs caused by compliance with the 80 dB(A) standard over the 17 year period to replace 90% of the existing truck fleet (i.e., until the majority of the community noise control benefits are achieved) are estimated to be in excess of $8 billion, additional fuel costs are over $1 billion, and additional purchase costs are over $3 billion, for a total additional consumer cost penalty in excess of $12 billion (1980 dollars). The basis for these industry cost estimates is detailed in the MVMA comments.

Ford's estimates of the incremental cost impact of implementing the 80 dB(A) standard compared to the 83 dB(A) standard are shown below, in terms of the cost penalty per truck, and then the annual penalty for three different model years.

| Truck Category | Cost per Truck (Retail Price Equivalent) 1981 Dollars | Ford Projections of U.S. Industry Volumes 1983 (000 Units) | 1985 (000 Units) | 1990 (000 Units) |
|---|---|---|---|---|
| Gasoline | $ 166 | 67 | 61 | 64 |
| Mid-Range Diesel | $ 517 | 145 | 155 | 164 |
| Premium Diesel | $1130 | 142 | 144 | 152 |
| Industry Incremental Cost (Million 1981 dollars) | | $246 | $253 | $267 |

The above Ford projections for engine volumes do not include the possible impact that future emission requirements may have on dieselization. For example, if 1984 emission levels result in an added $1,000-$1,200 cost on gas engines, and diesel costs only rise minimally, this would accelerate dieselization.

PUBLIC INTEREST CONSIDERATIONS

In addition to the minimal effect on community and passby noise that would be achieved with the 80 dB(A) standard, as described above, the increased costs associated with this standard would, in our view, be harmful to industry sales, and would significantly increase truck operating costs. The domestic auto industry in general, and particularly the trucking industry, is in a critically poor economic condition at this time and any and all unnecessary regulations - such as the 80 dB(A) requirement - should definitely be avoided.

According to the MVMA Data Digest, 1981 Edition, total U.S. retail sales of trucks over 10,000 lbs. GVW by domestic manufacturers in 1980 was 241,500 units - off 38% from the 1979 total of 390,000 units and off 45% from the 1978 industry record of 439,000 units. The heavy truck market has been depressed by general economic conditions and further aggravated by higher truck prices that have resulted because of inflation, rising production, labor and material costs, including the ever-increasing cost of complying with government regulations.

In the automotive and related supplier industries, this decline in output has resulted in the layoff of almost 900,000 employes. Profitability has collapsed. In the second half of 1979, the domestic auto companies lost $700 million before taxes; in the first nine months of 1980, pretax losses exceeded $4.6 billion. The situation among auto dealers is equally serious. Approximately 2,300 domestic dealers have gone out of business since January 1979; almost 83,000 dealership employes have lost their jobs. (See letter dated February 3, 1981 from MVMA to the President of the U.S.)

Response to Deferral Notice Section 3.0 Issues (Ref: 46 Fed. Reg. at 8499-8502)

The following is Ford's response to several of the specific issues raised in the above cited notice.

3.1 and 3.2 - Issue: Did EPA underestimate the growth of the diesel engine share of medium trucks and, consequently, also underestimate the cost of complying with the 80 dB(A) regulation?

Yes, EPA's estimates on diesel engine growth appear to be low. As a result of this difference in projected engine volumes, together with differences between EPA and Ford projected costs per truck, EPA's net cost of compliance with the 80 dB(A) standard are substantially understated. A comparison of EPA's original and revised cost estimates, and Ford's estimates, is shown below.

COST OF COMPLIANCE WITH 80 dB(A)
(Millions of Dollars)

| Model Year | Original EPA Estimates (Ref: Background Document 550/9-76-008) | | Revised EPA Estimate (Ref: Deferral Notice, Table 3.1) | Ford Estimate |
|---|---|---|---|---|
| | 1975 Dollars | 1980 Dollars | 1980 Dollars | 1980 Dollars |
| 1983 | 113.9 | 193.5 | 157.9 | 222.1 |
| 1984 | 117.9 | 200.3 | 165.2 | 224.4 |

3.8 - Issue: EPA did not include the cost of transmission covers or transmission redesign in its original analysis... The addition of transmission covers will also increase the maintenance costs above those originally projected by EPA.

Ford has three principal suppliers of medium and heavy truck manual transmissions: Eaton Fuller, Spicer and Clark. Each vendor has made transmission design changes to reduce noise.

It was Ford's original design assumption that shields to reduce transmission noise would not be required with transmissions incorporating these noise-reduction changes. Testing to confirm this has not been completed; however, prototype testing to date with the revised transmissions has indicated that transmission noise shields will still be required on the CL-Series with the Caterpillar 3406 and DDA 8V-92TA engines.

3.9 - Issue: EPA has not recognized the fact that some medium duty diesel engine lines may not be usable in certain truck chassis regulated to the 80 dB(A) level.

EPA implies that the new mid-range diesel engines will be quiet enough to make compliance with the 80 dB(A) standard economically unburdensome. Our preliminary noise tests to date indicate the contrary. The new DDA 8.2N, 8.2T and Caterpillar 3208T diesel engines have noise emissions approximately 2 dB(A) above our objectives for engine noise. Consequently, these engines will require more noise shielding than originally planned, thereby increasing manufacturing and maintenance costs.

3.10 - Issue: EPA has not recognized the fact that certain noise treatments, especially sound barriers, will impose additional loads on cooling systems and also promote a reduction in truck preventive maintenance.

Ford's engineering experience clearly demonstrates that the addition of required noise shields to achieve 80 dB(A) will penalize engine cooling, as explained below. Ford has no quantitative information on the effect of noise shields on preventive maintenance, but maintenance will be impaired and we believe it most likely that any noise control shields or seals that interfere with maintenance will simply be removed or left off.

The negative effect on engine cooling of additional noise shields needed to meet the 80 dB(A) noise standard is most evident with mid-range diesel engines. For example, the C-Series with Cat 3208N engine requires chassis side shields, rear chassis shields, back-of-cab shields, and engine undershields. This additional shielding restricts airflow to the extent that in order to meet minimum cooling requirements for this vehicle with automatic transmission, a larger radiator (815 $in^2$ versus 640 $in^2$ frontal area), new fan shrouds and new plumbing are required.

Premium diesel engine cooling is also affected by noise shielding as typified by a CL-CLT-9000 with 6V-92TTA engine. Here the addition of a back-of-cab shield degrades cooling air flow by an estimated 5%. Upgrading the cooling system to offset this penalty required an additional row of tubes in the radiator core.

3.13 - Issue: Some manufacturers have claimed that the use of larger mufflers will encroach on the available space for cab entrance and egress. EPA responded that the issue of larger mufflers was not raised by muffler manufacturers during the development of the proposed regulation. EPA further states "without detailed technical evidence that such a problem will exist, the seriousness of this alleged problem cannot be ascertained."

Ford has found that trucks designed to meet the 80 dB(A) standard will require larger mufflers; however, overall vehicle width restrictions require that we package our exhaust systems behind the cab of most of our truck models. Consequently, Ford has not found that its mufflers will encroach upon cab entrance or egress.

The following list gives some of the preliminary increased muffler sizes required on Ford Trucks to meet the 80 dB(A) noise standard:

| Application | Current Size | 80 dB(A) |
|---|---|---|
| 429 Gas Engine | 8½" dia. x 30" | 8½" dia. x 40" |
| Mid-Range NA Diesels | 8¼" x 11½" x 26" | 11" dia. x 36" |
| Mid-Range Turbo Diesels | 8¼" x 11½" x 26" | 11" dia. x 30" |
| Premium Turbo Diesels | 10" dia. x 45" | 10" dia. x 60" |

Ford Motor Company
April 24, 1981