TMSWC

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FACT SHEET

NOISE EMISSION REGULATION FOR
TRUCK-MOUNTED SOLID WASTE COMPACTORS (TMSWC)
(Refuse Collection Vehicles (RCVs) or Garbage Trucks)
(40 CFR PART 205)

AGENCY: U.S. Environmental Protection Agency
Office of Noise Abatement and Control
Standards and Regulations Division (ANR-490)

ACTION:
- Sets Noise Emission Standards for Newly-Manufactured TMSWC
- Defines Test Methodology
- Prescribes procedures for compliance monitoring and enforcement

REASON: The TMSWC was identified as a major source of noise by the Administrator of EPA under the authority of Section 5(b)(1) of the Noise Control Act of 1972, on May 28, 1975. Under Section 6 of the Act, the Administrator is required to prescribe regulations embodying a noise emission standard for each product so identified, after having published proposed regulations and having invited public comment and participation in rulemaking.

DESCRIPTION:
- The regulation prescribes a not-to-exceed noise level for newly-manufactured TMSWC, as follows:
  - Effective 10/1/80: 79 decibels
  - Effective 7/1/82: 76 decibels
- The noise level is determined as the logarithmic (energy) average of measurements made at the front, rear and two sides of the vehicle at a distance of 7 meters (approximately 23 feet) with the vehicle stationary, empty, and operating through its compacting cycle at the maximum engine speed allowable for compacting.
- The measurement made is the maximum A-weighted sound level (in decibels) with the instrument set to "slow" meter response.
- The regulation does not apply to existing refuse collection vehicles and does not require retrofit or replacement of existing vehicles.
- The regulation includes an "Acoustical Assurance Period" (AAP) requirement which specifies that the product must be designed and built so that its noise level does not exceed the regulatory level for a period of two (2) years or 5000 operating hours when operated and maintained in accordance with manufacturer instructions. The regulation also prohibits tampering with or removal of the noise-control features.
- The regulation preempts state and local laws setting noise limits for newly manufactured refuse collection vehicles. State and local governments continue to have the power to regulate and control refuse collection activities by setting noise limits for in-use vehicles, prescribing curfews or operating limitations, or requiring the use of plastic bags or containers, etc.

HEALTH and WELFARE BENEFITS:

- o EPA estimates that over 19 million persons are presently exposed to enviromental noise, due in large part to garbage compaction operations, that jeopardizes their health or welfare, i.e., in excess of a day-night average sound level (L_{dn}) of 55 decibels.
- o In 1991, when the entire fleet of refuse collection vehicles meets the regulatory standard, the number of persons exposed to environmental noise levels from garbage compaction above L_{dn}=55 dB is expected to decrease from over 19 to about 6 million persons.
- o The extent and severity of noise impact from garbage compaction operations is expected to decrease by about 74%. Sixty per cent of this decrease is attributable to the compactor noise regulation and forty per cent to the previous Federal noise regulation for medium and heavy trucks.

TECHNOLOGY:

- o Compliance with the standard can be accomplished by application of currently available technology.
- o One simple approach is to design the compaction system to operate at reduced truck engine speeds, by incorporation of engine speed controls and the proper sizing and matching of power take-off (PTO) units, gear ratios and hydraulic pump capacity/size.
- o Additional noise reduction can be achieved by use of quieter PTO designs or use of front drives off the truck engine crankshaft to power hydraulic systems.

COSTS and ECONOMIC IMPACT:

- o Application of technology to meet the regulatory standard, and associated testing, reporting and recordkeeping is expected to entail the following industry costs:
  - o Increase in list price of RCV: about 10% (some units have been quieted at an incremental cost of about 5%),
  - o Equivalent annual cost increase of about $21.5 million passed through to the public,
  - o Increased annual costs to the consumer: increase in collection charges of about 0.5% (e.g. 50 cents per year for a family paying refuse collection costs of $100.00 annually).
- o No significant adverse economic impact is expected on the industry overall resulting from the foregoing costs. A slight decrease in demand for new RCV's may result, but it will be more than counter-balanced in terms of total industry revenue by increased prices.

ENFORCEMENT:

- o Enforcement is comprised of the following components:
  - o Production verification (PV): pre-sale testing of a production product by the manufacturer with the results reported to EPA,

- Distributors who assemble compactor bodies to truck chassis are manufacturers under the Act, and are responsible for PV,
- Distributors are allowed to rely on PV tests already performed by a compactor body manufacturer as long as the distributor follows installation instructions from the body manufacturer;

- Selective Enforcement Audit (SEA): testing by the manufacturer or EPA of a sample of production products upon request by the EPA,
  - If a sample fails the SEA, the manufacturer could be ordered to continue testing the non-complying model until a cure is found for the non-compliance;
- Inspection and Monitoring - with the manufacturer's consent or with a warrant, EPA enforcement officers will inspect required records and the manufacturer's test facility, and/or will observe PV and SEA testing.

- When EPA finds non-compliance, the Administrator may issue an order to remedy the non-compliance.
  - Orders may be issued only after notice and opportunity for a hearing.
  - Examples of possible orders are: cease-to-distribute the non-complying model, or, recall the non-complying model and fix the product so that it complies.

QUESTIONS AND ANSWERS

NOISE EMISSION REGULATION FOR
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Q. Why has EPA singled out refuse collection vehicles to regulate?

A. This regulation complements the existing Federal regulation, which became effective January 1, 1978, requiring quieter medium and heavy truck chassis. A key reason for issuance of a noise regulation for refuse collection vehicles (often referred to as garbage trucks) is to extend the benefits of reduced truck noise to the persons adversely affected by the noise of these special-purpose vehicles.

Q. Is the noise from refuse collection vehicles really a problem?

The noise from compaction operations of garbage trucks is the source of frequent complaints in many communities. Compaction noise range from 73 to over 90 decibels, or from the sound of a busy highway to the sound of an alarm clock ringing at close distance. But the total impact of their noise can not be judged just by the number of people complaining. From its studies, EPA estimates that more than 19 million Americans are regularly affected by annoying noise caused by the compacting operations of garbage trucks.

Q. What are EPA's noise level limits for refuse collection vehicles?

A. The first of two reductions in noise applies to units manufactured after October 1, 1980, limiting the noise levels of refuse collection vehicles to 79 decibels. A second and final step, to a limit of 76 decibels, will take effect July 1, 1982 -- giving manufacturers time to phase in their compactor modifications with the second noise reduction step of previously issued regulations on medium and heavy trucks which takes effect January 1, 1982.

Q. But how much quieter will the new trucks be?

A. The average noise level will be 6 to 8 decibels lower than the average of today's vehicles, and 16 to 18 decibels lower than the noisiest of today's vehicles. Because of the way the ear responds to sound this means that the public will perceive that the average noise has decreased by over half.

Q. Will quieter trucks really make that much difference?
Don't collectors shouting and banging cans make a lot of noise?

A. Certainly factors other than garbage trucks contribute to the noise of refuse collection. EPA, however, has authority only to regulate newly manufactured products which are major sources of noise. Noise problems related to other areas of collection have in some cases, been controlled to various

levels of success by local actions such as changes to trash collection routes, requiring use of non-metal trash cans or bags, or imposing curfews on garbage pickup.

Q. Is EPA trying to tell us that exposure to noise causes hearing loss?

A. Noise loud enough to cause hearing loss is virtually everywhere today. Our jobs, our places of entertainment and recreation, and our neighborhoods and homes are filled with potentially harmful levels of noise. It is estimated that 20 million or more Americans are exposed daily to levels of noise that can cause permanent damage to their hearing. We do not claim that garbage truck noise alone causes hearing loss, but continued exposure to noise levels averaging over 70 decibels throughout the day can cause hearing loss over a number of years.

Q. Does exposure to noise cause other health problems?

A. Yes. There is increasing evidence of a link between exposure to noise and the development and aggravation of other health problems. The explanation for this seems to be that noise causes stress to which the body reacts with such things as increased adrenaline, changes in heart rate, and elevated blood pressure.

Q. What are the expected health and welfare benefits of the regulation?

A. EPA estimates a 74 percent decrease in the severity and extent of the adverse effects of garbage truck noise by 1991. Although for many people, garbage truck noise will still be disruptive, literally millions will be able to sleep without being awakened and carry on normal activities, such as conversations, television viewing, and reading without annoying interruptions.

Q. Where did the U.S. Environmental Protection Agency (EPA) get the authority to regulate noise?

A. Under the Noise Control Act of 1972, the U.S. Environmental Protection Agency is required to identify and regulate major sources of noise which may be detrimental to public health or welfare.

Q. Doesn't the government regulate too much already?

A. Douglas Costle, the Administrator of EPA responded to this question as follows: "The intrusion of government regulation in our lives is not the issue --at least to the degree that it assumes we have a choice between regulation or no regulation. To pose the issue in these terms is just as misleading as to argue that as a society, our only alternatives are growth or no growth. Regulation is a reflection of fundamental changes our society is undergoing --changes resulting from the increasing sophistication of science and technology. The question is how and where we are going to grow and how and where we are to regulate."

Q. Garbage truck noise affects people living in the cities. Why should people living in smaller communities be forced to pay for big city problems?

A. Some cities already require quieted garbage trucks. Manufacturers respond to market demands. Thus, if a city requires a quieted garbage truck, manufacturers will make the modification necessary to produce that truck. This process is expensive. Although many of the costs are passed on to the city ordering the quieted vehicle, manufacturers amortize the production expense by increasing the prices on other products as well. Although it is not the sole intent of the regulation, it will allow communities not placing special orders to get more for their money. Additionally, the Federal government is responsible to manufacturers of products sold in interstate commerce for maintaining national uniformity of treatment. Because garbage trucks are offered for sale on an interstate basis, national uniformity of treatment will relieve manufacturers of a multiplicity of state or local noise requirements, thus eliminating certain potential production line problems and their ultimate high costs to the user.

Q. Can not noise from refuse collection be controlled by curfews?

A. Many cities have tried to alleviate the noise problems by imposing curfews on refuse collection operations. The EPA believes that a curfew can be effective in reducing sleep disturbances by transferring some of the noise impact from nighttime hours to daytime hours. Where curfews are practical, they can be a useful complementary action to the noise regulation. It should be recognized, however, that curfews are not cost-free, as sometimes believed; in cities with heavy traffic, a curfew can be costly by impairing the efficiency of refuse collection activities.

Q. Does EPA ever ask the public how they feel about more regulations?

A. Yes, public participation is a major part of the Agency's regulation process. Meetings and written communication with state and local officials, manufacturers, distributors, users and the general public contribute information that is used in drafting the rule. In 1977, a 90-day period was specifically set aside for comment on this rule. However, public comment has been accepted and considered since May of 1975 when garbage trucks were first identified as a major source of noise.

Q. What good is the comment period on the regulation?

A. Public participation in rulemaking is the most important part of the regulation process. The comment period is only part of the public participation program. The purpose of a comment period is to solicit, to the maximum extent possible, the views of the American public on the merits and detriments of the rule. All comments received and issues raised during the comment period are considered and responded to by the Agency prior to the Administrator issuing the final rule.

Q. What effect did the public comment period have on the regulation of garbage truck noise?

A. As a result of comments from manufacturers, distributors, users and the general public, several changes were made in the rule relating to test procedures, distributor's liability, the Acoustical Assurance Period, and certain enforcement procedures. The comment period confirmed the need for the regulation and did not reveal adequate evidence for EPA to rescind the rule.

Q. How did EPA determine the noise level standards established in the regulation?

A. The not-to-exceed noise level standards were established by reviewing the health and welfare benefits which could be obtained by reducing levels of garbage truck noise and then talking extensively with the industry about noise levels that could be achieved with available technology giving consideration to cost.

Q. Where did EPA get the information on which the regulation is based?

A. EPA conducted extensive interviews with key members of firms in the solid waste compactor manufacturing industry to gain firsthand knowledge of the industry and its products and to obtain and verify technological and financial information. Distributors and users of refuse compacting equipment, industry associations, and state and local governments were also consulted to obtain their views on the proposed regulation. Public hearings were held in Salt Lake City, UT and New York, NY. Both written comments on the proposed regulations and those received from the hearings were taken into consideration when the final regulation was drafted.

Q. Are all refuse collection vehicles affected?

A. No, the proposed standards apply only to newly manufactured refuse collection vehicles equiped with compactor bodies.

Q. Must all garbage trucks now in use be changed to include noise control devices?

A. No, only garbage trucks (truck chassis and compactor bodies) manufactured after October 1, 1980 will be affected by the regulation.

Q. How much will this regulation cost the manufacturer?

A. It is the practice of the industry to pass all costs on to the consumer with an added margin for profit.

Q. How much does a garbage truck cost? What are the additional costs due to quieting?

A. A garbage truck, depending on its size and type can cost from $35,000 to $75,000. The costs of quieting features on a truck, again depending on size and type, can range from $2,000 to $6,000. As a rule of thumb, the cost of quieting a truck can be estimated as not more than ten (10) percent of the total cost of the compactor vehicle.

Q. Will not equipment costs to communities skyrocket?

A. No, the cost of refuse collecting equipment should not skyrocket. Overall refuse collection costs are not expected to increase significantly since capital equipment costs are a small part, about five (5) percent, of the total cost of an organization's refuse collection operations.

Q. Will the regulation result in increased fuel cost?

A. No, in fact we estimate that by 1991 when the refuse collection fleet consists of quiet vehicles, annual fuel savings will be at least two (2) million gallons of gasoline and 1.2 million gallons of diesel fuel.

Q. Will not the regulation discourage the use of diesel engines leading to increases in fuel usage?

A. We have had no evidence to indicate that issuance of this regulation will discourage the use of diesel engines. Although some diesel engines tend to be noisier than some gasoline engines, there is ample evidence to show that vehicles can be manufactured to meet the noise standard with either diesel or gasoline engines. A number of quieted vehicles of both types have been tested by the Agency and were found to meet the proposed noise emission standard.

Q. What effect will increased costs of garbage trucks have on communities?

A. The expense of quieting a fleet of garbage trucks will be incurred gradually, as new quieted trucks are phased into the fleet to replace old trucks over a period of years. Communities can figure a ten (10) percent additional cost when purchasing new trucks. However, it is expected that operating costs may be reduced because of lower fuel usage.

Q. How much will this regulation cost the average family?

A. Although rates for garbage collection vary from city to city, annual collection rates for a household now paying $100 per year, should not increase more than 50 cents per household per year.

Q. Why should compactor manufacturers be held responsible for the noise emission of the total refuse collection vehicle, including compactor body and chassis, when they have no control over the design and manufacture of the chassis?

A. This regulation has been designed to interface with and complement the existing Federal noise emission regulation for medium and heavy trucks. Therefore, all compactor vehicles affected by this regulation will have chassis that are in compliance with existing Federal noise standards for truck chassis. The Agency has taken the position that the chassis noise contribution during compaction can indeed be controlled by the compactor body manufacturer. The chassis noise is strongly dependent on the engine speed. The body manufacturer can control the engine speed - and hence the chassis noise - by his design of the overall compactor system which includes the power transfer mechanisms. Consequently, responsibility for the noise of the total vehicle properly rests with the body manufacturer, as the final manufacturer of the product that enters into commerce. This is in line with the definitional responsibilities for "manufacturers" as set forth in the Noise Control Act of 1972, and over which the Agency can exercise no discretion.

Q. Sometimes more than one party is responsible for manufacturing a garbage truck. Who then is responsible for the ultimate quieting of the truck?

A. The person who mounts the compactor body on the truck chassis usually enters the compactor truck into commerce. The person who enters the compactor vehicle into commerce (i.e., transfers title to the first person who purchases the vehicle for purposes other than resale) is responsible for its meeting the Federal standard.

Q. Why should a distributor be held responsible for the noise of a vehicle he assembled?

A. Assembly of the compactor body to the truck chassis is the final step in the manufacture of a garbage truck. If a distributor performs that assembly, he is the manufacturer.

Q. Must a distributor measure the noise level of each garbage truck he assembles and sells?

A. No, provided he has faithfully adhered to the compactor body manufacturer's truck chassis specifications and body mounting instructions.

Q. How will the government determine that the noise levels from the new garbage truck are in compliance with the standard?

A. Measuring noise levels from new garbage trucks is the responsibility of the manufacturer. The regulation specifies procedures for measuring and

reporting to the Federal government the noise of each manufacturer's garbage trucks. The government may, from time to time, randomly select and test new trucks in the field.

Q. How will EPA enforce the regulation?

A. To ensure that manufacturers are properly conducting product verification tests, EPA will visit manufacturers' facilities to observe testing operations, inspect test records and may require noise measurements of randomly selected vehicles from the manufacturers' inventory or production line.

Q. How can the purchaser of a quieted garbage truck be certain the quieting mechanism of a truck will last?

A. The regulations require newly-manufactured trucks to remain at their quieted levels for a minimum of two-years or 5,000 operating hours, whichever comes first. This requirement is called the Acoustical Assurance Period (AAP). The AAP does not provide the user recourse through the manufacturer should the equipment falter within that period. It does, however, provide the user with the confidence that the truck was built to conform to the noise emission regulation and that with proper maintenance should continue to function at acceptable noise levels.

Q. Garbage trucks receive hard use. Is not a two-year AAP too long to hold a manufacturer responsible for the noise his truck would make?

A. The average truck is driven about 12,000 miles per year, for about seven years. Manufacturers make strong claims that their trucks are built to last. The typical manufacturer's warranty is for a six-month period, but two-year warranties are not uncommon for fleet purchases. To ensure that the regulation would not place an excessive burden on the manufacturer, EPA conducted studies on quieted truck chassis similar to those used as garbage trucks. These studies showed no deterioration in their noise control mechanisms in 100,000 miles of driving. This indicates that the noise control features are durable; and, even with rough use, the noise level of a truck that had been driven as much as 25,000 to 50,000 miles in two-years should not have deteriorated significantly, provided it is maintained and operated in accordance with manufacturer instructions.

Q. What can a purchaser or user of a new compactor vehicle do if he suspects the noise level exceeds the standard?

A. For users who may be concerned that a specific vehicle did not meet the noise regulation at the time of sale, instructions to conduct somewhat abbreviated noise level tests are included in the regulation. Users whose trucks have been properly maintained may make a warranty claim through the dealer to the manufacturer. The warranty, however, will not cover the Acoustical Assurance Period.

Q. What recourse should the owner of a faulty noise mechanism on quieted truck take if the truck is past the time of sale warranty but is within the Acoustical Assurance Period?

A. Users whose vehicles are within the Acoustical Assurance Period should contact the manufacturer. If the truck has been properly operated and maintained, and has not been tampered with, the manufacturer may decide to repair it. Users who do not obtain satisfaction from the manufacturer may contact the Noise Enforcement Division (EN-387), U.S. Environmental Protection Agency, Washington, D.C. 20460 who will pursue the matter with the manufacturer.

Q. Is not a 45-day maximum delay period from product manufacture to testing unreasonable for manufacturers located in severe weather climates?

A. Yes, the regulations have been changed to allow a testing extension for up to 90 days for manufacturers located in areas where severe weather would prohibit testing for more than 45 days.

Q. Where does EPA think it gets the authority to conduct searches, recall products, and issue cease to distribute orders?

A. The authority to perform searches comes from the Agency's general authority to enforce the Act. Administrative orders such as recall and cease to distribute flow from Section 11(d) of the Act. The sections of the regulation which concern recall and cease to distribute orders have been held back, or reserved, to allow the courts to rule on very similar provisions in other noise regulations currently under litigation.

Q. What role will state and local governments play?

A. The EPA considers their role crucial. Although state and local governments are prohibited from setting noise emission standards not identical to the Federal government's, they can adopt and enforce the Federal standards or concentrate on complementary noise enforcement programs by adopting strategies aimed at regulation of the use and movement of garbage trucks. Such regulation could include time-of-day restrictions and requirements for plastic versus metal garbage cans.

Q. Why is industry opposed to noise regulation?

A. The National Solid Waste Management Association (NSWMA), one of two principal trade associations for the manufacturers of compactors, testified at the public hearings on the proposed rule that they "support a policy that would lead to a uniform national noise emission standard for equipment that is used in the waste collection industry." Their opposition was primarily to the proposed compliance test procedures and manufacturer liability.