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REGULATORY IMPACT REVIEW  
OF  
NOISE REGULATION FOR  
TRUCK MOUNTED SOLID WASTE COMPACTORS

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TRUCK-MOUNTED SOLID WASTE COMPACTORS:  
REGULATORY IMPACT REVIEW OF NOISE REGULATION RECISSION

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has conducted a review of the noise regulation for truck-mounted solid waste compactors (40 CFR Part 205 Subpart F). This review was performed in accordance with the guidelines for regulatory relief recently announced by the President and in response to requests from the industry that the regulation be reconsidered based on excessive costs of compliance.

BACKGROUND OF THE REGULATION

In accordance with Section 5(b)(1) of the Noise Control Act of 1972, the Administrator of the Environmental Protection Agency, on May 28, 1975 (40 FR 23105) identified Truck-Mounted Solid Waste Compactors (TMSWC), more commonly referred to as "garbage trucks" or "compactors," as a major source of noise. This identification was made, in part, on the basis that, as special auxiliary equipment for trucks, compactors should be regulated to complement the existing Federal noise emission regulation for medium and heavy trucks (40 CFR Part 205, Subpart B).

Furthermore, in keeping with Section 2(a)(3) of the Act, an additional consideration in the Agency's identification was the anticipated need to establish a single, national uniform standard for newly-manufactured compactors that would free manufacturers from potential trade and economic burdens resulting from a multiplicity of conflicting State and local new-product noise regulations.

Under the authority of Section 6(a)(1) of the Act, the Administrator published, on August 26, 1977, a Notice of Proposed Rulemaking that specified "not-to-exceed" noise emission levels for newly manufactured compactor vehicles (42 FR 43226). In conjunction with the proposed rule, the Agency solicited public participation, established a public comment period from August 26 through November 26, 1977, and held two public hearings: one in New York City on October 18, 1977 and the other in Salt Lake City on October 20, 1977. The Agency published a Notice of Final Rulemaking on October 1, 1979 (44 FR 56524).

In late 1980, several compactor manufacturers informed the Agency that the regulation placed testing and reporting requirements upon them that, in their opinion, were excessively burdensome and costly. To explore these claims, the Agency held three open meetings with chassis and compactor manufacturers and other interested parties between February and March 1981. The results of these discussions indicated that many manufacturers were compelled to test a much higher percentage of their products than was originally anticipated by EPA because their compactor bodies were being mounted on a variety of truck chassis provided to them by their customers. Thus, with little or no control over the chassis selection and without advance knowledge of the detailed chassis specifications, particularly noise data, several compactor manufacturers considered it necessary to test each vehicle to ensure compliance with the regulation.

Based on these public meetings, as well as information obtained through practical experience with this regulation by several compactor manufacturers and by EPA's enforcement personnel, the Agency agreed that alternative testing and compliance provisions could and should be developed. Accordingly, on

February 12, 1981, the Administrator issued a Notice of Reconsideration (46 FR 12975) that suspended all enforcement of the regulation until EPA could reassess the testing and reporting requirements.

SUMMARY OF THE REGULATION

The compactor regulation established standards for noise emissions of newly-manufactured truck-mounted solid waste compactors. The standards specify that noise emissions be described in terms of the energy-averaged A-weighted sound pressure level in dB, measured (using "slow" meter response) at a distance of 7 meters (approximately 23 feet) from the front, rear and side surfaces of the TMSWC vehicle. For test purposes, the vehicle is stationary, empty and operated through its compacting cycle at the maximum engine speed allowable for compaction.

The regulation requires that, effective on the dates listed below, TMSWC vehicles not produce noise in excess of the levels shown when operated and evaluated according to the test methodology required in the regulation.

TMSWC Regulatory Noise Emission Standards  
(A-weighted Sound Pressure Level @ 7 meters)

<u>Effective Date</u>	<u>Not-to-Exceed Noise Level, Decibels</u>
October 1, 1980	79
July 1, 1986*	76

The regulation also incorporates an enforcement program which includes production verification, selective enforcement auditing, warranty, maintenance, compliance labeling and antitampering provisions. Production verification means that prior to the distribution into commerce of any TMSWC vehicle, a manufacturer must submit information to the EPA which demonstrates that his product conforms to the standards. Selective enforcement auditing means that, in response to a request from the Agency, a number of TMSWC's must be tested to determine if the units, as they are produced, meet the standards.

The regulation places responsibility for the noise level of the vehicles on the compactor body manufacturer. The reasons for this assignment of responsibility are as follows:

1. The major factor influencing the amount of noise emitted by the refuse collection vehicle during compaction is the speed of the truck engine. The noise produced by the engine depends strongly on the engine's rotational speed. In addition, the gear noise of the power transmission mechanism that powers the compaction machinery is also influenced markedly by the engine speed.

\*The effective date of the 76 dB standard was deferred from July 1, 1982 to July 1, 1983 by the deferral notice of January 27, 1981 (46 FR 8497). The 76 dB standard was further deferred to July 1, 1986, in the notice of February 17, 1982 (47 FR 7188).

2. The compactor body manufacturer has design control over the entire system including selection of the key mechanical components such as the hydraulic pump, power take-off unit (PTO) and other components that provide interfaces between the compactor body and its machinery and the truck chassis. The selection of these key components and their performance characteristics (e.g. gear ratio of the PTO) ultimately determines the required operating speed of the engine during compaction, and consequently, the noise emissions of the composite vehicle.
3. A Federal standard has previously been promulgated to control the noise produced by medium and heavy truck chassis. The noise level standard for garbage trucks was selected, in large part, on the permissible noise emissions of a Federally regulated chassis.

The regulation requires manufacturers to test one truck from each category and only the noisiest configuration in each category (as defined in the regulation<sup>1</sup>) - not every vehicle produced on each individual model. The test data is to be provided to the EPA. This testing and reporting requirement, similar to that in other EPA noise regulations, was not expected to be burdensome. The Agency anticipated that after working within the requirements of the regulation for a time, the manufacturers would develop an economically efficient approach to design of quieted compactors which takes advantage of the fact that new truck chassis conforming to the truck noise standard would be sufficiently quiet to conform to the compactor noise standard if the system were designed to compact at engine speeds below about 1500 RPM for gasoline engines, and about 1100-1200 RPM for diesel engines.

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<sup>1</sup>In the regulation, a category is determined by the following features: truck engine type, compactor body type and compactor power system. A "configuration" is a member of a category that has specified power take-off and truck exhaust system.

In addition, the Agency expected that, because of increased familiarity with other quieted components, the compactor manufacturers would be able to exercise engineering judgment in selecting the appropriate products to test, thereby limiting testing to less than 15 percent of the units he produces.

In response to concerns expressed by distributors regarding potentially excessive testing requirements, the final regulation incorporated provisions intended to minimize the testing burden on distributors who assemble a compactor vehicle by mounting a compactor body on a truck chassis. These distributors (who are "manufacturers" under the Noise Control Act and are therefore subject to all provisions of the regulation) are permitted to rely on the production verification tests of the compactor body manufacturer if the distributor faithfully follows the assembly instructions provided by the compactor body manufacturer.

#### Preemption

Under the authority of the Noise Control Act of 1972, as amended, this regulation establishes after its effective date, a uniform national standard for newly-manufactured TMSWC vehicles that preempts all state and local new product noise emission regulations which are not identical with the Federal regulation.

However, since primary responsibility for noise control rests with state and local governments, nothing in the Act or the regulation precludes or denies the right of any state or political subdivision from establishing and enforcing controls on environmental noise through the licensing, regulation or restriction of the use, operation or movement of any product or combination of products. Furthermore, Section 6(f) of the Act, as amended, gives a state or political subdivision the right to petition the Administrator of the EPA to revise the standard on the grounds that a more stringent standard is necessary to protect the public health and welfare.



The noise controls reserved to state and local authority include, but are not limited to, the following:

1. Control on the manner of operation of products.
2. Control on the time of day during which products may be operated.
3. Control on the places in which products may be operated.
4. Control on the number of products which may be operated simultaneously.
5. Control on noise emissions from the property on which products are used.
6. Control on the licensing of products.
7. Control on environmental noise levels.

Thus, through the use of noise control measures reserved to them, State and local governments have the latitude to effect near-term relief from TMSWC noise.

#### IMPACTS OF THE REGULATION

##### Economic Impacts

The establishment of Federal noise standards for newly-manufactured truck-mounted solid waste compactors gives rise to expenditures which otherwise would not be directly incurred by the private and public sectors.

Recognizing that certain expenditures are unavoidable if regulatory action is taken to protect the public health and welfare from inadequately controlled noise, the Agency performed analyses to estimate the magnitude and potential impact of these expenditures. Examined in the analysis were the structure of the industry, the estimated cost of abatement of each type of compactor, the price elasticity of demand, capital and recurring costs of compliance, the impact of enforcement on annual operating and maintenance costs, and the indirect impacts of the proposed regulations.

Viewed in light of the distressed economic condition of the industry, the estimated economic impact on the industry, that was originally expected to be modest now appears to have the potential to be significantly greater than originally anticipated. This is likely to be the case particularly for smaller manufacturers who may lack adequate technical and financial resources to design and produce regulated products in the present economic environment without incurring costs that may impair their competitive position. It also seems likely that the small manufacturer may have to custom-build a larger proportion of his product line than do larger manufacturers, thus incurring relatively greater testing costs which could also impair his competitive position. Thus, the overall economic impact of this regulation could be particularly severe on the smaller manufacturer based on new data and information that was not available for the Agency's original economic analysis.

#### Price

One measure of the cost impact of quieting a product to meet the regulatory standard is the increase in its list price. The Agency's studies (which take into account manufacturer's estimates of cost increases) indicated that average list price increases for compactor bodies can range from about 12.8 to 25.6 percent depending on compactor type and size. Since the complete vehicle consists of a body and chassis, each contributing to the total cost, the potential percentage increase for the complete vehicle was estimated to be about half that for the body alone, ranging from 6.4 to 12.8 percent. This was expected to result in a sales-weighted average list price increase of about 10.3 percent for the various combinations of compactor bodies and chassis-cab units. There was evidence that a few small firms in the industry, by virtue of their small market share and related financial and operation factors, would incur higher manufacturing costs resulting in somewhat higher price increases.

### Capital Costs

Capital equipment costs represent a small portion (about 5 percent) of the annual operating budget for the typical refuse collection and disposal firm, the potential purchaser of this product. Consequently, the expected increase of about 10 percent in the list price of a compactor vehicle due to the regulation should translate into increased operating costs of less than 0.5 percent.

The EPA-estimated increase in the uniform annualized cost<sup>2</sup> to the waste collection industry as a result of the implementation of this regulation is \$33 million (1981 dollars). The annual capital outlay by purchaser-users for the increased price of the vehicles was estimated to be \$42 million. As capital expenditures are financed over several years, this figure does not represent actual immediate expenditures and it is not directly comparable with the annualized cost. The Agency anticipated that most of these costs would be passed through to the consumer of waste collection services. EPA estimated that for a household with present refuse collection costs in the range of \$100 per year, the additional cost would be about 50 cents per year due to the promulgation of this regulation.

### Maintenance and Operating Costs

Maintenance costs for compactor vehicles were expected to increase due to the requirements of the regulation. This increase was expected to be on the order of \$69 annually for front loaders and \$120 annually for side and

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<sup>2</sup>Annualized cost, or equivalent annual cost, is the fixed annual payment needed over a specified period of time (20 years is the period usually considered by the Agency) to cover the discounted sum of capital, operating, and maintenance costs over that period.

rear loaders. The maintenance cost increases for side and rear loaders are due largely to maintenance on the clutch of the added direct drive power take-off and on the impact-reducing materials applied to the surfaces of the loading hopper. Front loaders were assumed to employ a flywheel power take-off which entails no significant increase in maintenance costs. Thus, their increased maintenance costs were expected to be due largely to the expected maintenance on the impact-reducing material added to their loading hoppers. Total annual maintenance cost increase was estimated at \$10 million.

The changes in compactor operating conditions associated with the noise control treatment were expected to result in some fuel savings due to the slower speed of the engine. The EPA expected no loss of productivity due to slower engine speed, which can be offset by using larger hydraulic pumps with increased capacity. The estimated annual savings when the entire fleet came into compliance was expected to be between 20 and 24 million gallons of fuel (gasoline and diesel). These savings could be greater than the expected increase in maintenance costs. Due to the rapidly changing costs of both gasoline and diesel fuel, the net dollar savings in operating costs, are not firm. However, based on today's fuel prices of about \$1.30 per gallon, the potential annual fuel savings would be in the neighborhood of \$30 million.

#### Industry Structure

No significant change in industry profits was expected to occur over a 22-year period. Industry growth was not expected to be significantly impacted due to the noise regulation itself. Adequate lead time, prior to the effective dates of the regulation, as provided to allow for proper planning and to avoid an adverse impact on the market. However, the economic difficulties due to the effects of inflation and high interest rates were unanticipated factors that were not taken into consideration in deriving the foregoing inferences.

### Suppliers

Some component suppliers were expected to increase their sales depending on their ability to reduce the noise emissions of their products. Furthermore, those suppliers specializing in the manufacturing of sound damping and sound absorptive materials and other products required for noise abatement would be expected to experience significant increased sales. The Agency has not quantified this benefit.

### Employment

Employment was not expected to be affected significantly by the regulation. Persons who might be affected by reduction of production due to the regulation amounted to less than 2 percent of industry's employee population of about 2900 persons. However, an offsetting increase in employment was expected to occur due to the new testing and compliance activity and procurement of noise control components and materials resulting from the regulation.

### Exports and Imports

Since the noise control treatment generally represents add-on materials or substitute components or both, machines for export can generally be produced without noise control treatment. Units produced solely for export need not comply with U.S. noise standards. Consequently, the potential impact on exports was expected to be minimal. However, all imported compactors are subject to the regulation. Therefore, domestic and foreign manufacturers would be affected equally and no adverse impact due to their competition should result. Consequently, the regulation was not expected to have an impact on the U.S. balance of trade.

### Macroeconomic Impacts

No macroeconomic impact was expected as a result of noise abatement regulations on the TMSWC body industry due to the small size of the industry and the low overall costs associated with the regulation.

### Taxes

There is the possibility of an indirect increase in local taxes, where collection services are provided by municipal fleets, but the amount of the increase to the individual consumer and taxpayer is expected to be less than one percent.

### Health and Welfare

Compliance with the Federal standards was expected, on the average, to reduce noise emissions from TMSWC's by 6.5 dB from the original unregulated levels. Compared to the noisier units originally in service, complying units would be quieter by 14 dB or more. EPA estimated that approximately 19.7 million persons (in the baseline time period, 1975) were exposed to residential neighborhood noise levels above the day-night average sound level ( $L_{dn}$ ) of 55 dB due to the operation of truck-mounted solid waste compactors.<sup>3</sup>

With the entire refuse collection fleet in compliance with the noise standards, the number of persons exposed to  $L_{dn}$  greater than 55 dB would be reduced to approximately 6 million. This represents an approximately 70 percent decrease in the population exposed to noise levels exceeding that level identified by the EPA as requisite to protect the public health and welfare. Those 6 million persons remaining above the identified protective level would also receive benefits in the form of varying degrees of reduction in their respective exposures.

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<sup>3</sup>The agency has determined that a day-night average sound level ( $L_{dn}$ ) of 55 dB or lower is requisite for the protection of the public health and welfare with an adequate margin of safety. The basis for this determination is presented in the EPA publication "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," EPA 550/9-74-004.

## REVIEW OF MAJOR ISSUES

Many issues of concern to industry and affected members of the general public became apparent during the public participation phases of the development of the TMSWC regulation. The Agency considered those issues in amending the proposed rule as it evolved into the final rule. Many of the features of the proposed rule remained in the final rule, including several provisions to which the industry had taken exception. The next several paragraphs delineate the major issues which the industry raised with respect to the regulation, either in the comment period for the proposed rule or in communications to the Agency and to members of Congress after promulgation of the final rule. The Agency's responses are also presented as related to the specific issue.

### Need for National Uniformity of Treatment

As pointed out earlier, a key objective of the Congress in enacting the Noise Control Act was to establish a mechanism through the Federal regulatory process and the preemption provisions of the Act to provide a uniform national standard for major sources of noise. The reasoning behind these provisions was that the proliferation of diverse state and local noise standards tended to disrupt the economic efficiencies of mass production by requiring manufacturers to design and build a number of different models to meet the different local standards. By setting a single national standard that preempted conflicting state and local standards, a Federal regulation would tend to restore production line efficiencies by reducing the diversity of configurations needed to satisfy local requirements.

In support of this approach, a major trade association and two leading manufacturers of the solid waste management industry testified at the New York City hearings in September 1977 that they favored a Federal regulation that provided a uniform national standard (although they did not agree with all

provisions of the proposed regulation). Since promulgation of the regulation, the industry, through its trade association has reversed its position and now expresses opposition to the regulation and the preemption it affords over state and local rules.

If much of the product of the TMSWC manufacturers is custom-assembled, then two complementary conditions may be inferred:

1. It does not impose significant hardship on the industry to be required to meet differing local noise limit ordinances (or the local procurement of noise-controlled vehicles through the "Buy Quiet" process) in order to sell vehicles to or in a specific community.
2. There is no significant benefit to the industry, in terms of reduced costs, to having a uniform national noise standard that preempts local requirements.

The industry perception is that the uniform national standard represents a significant disbenefit in that it imposes substantial additional costs which the industry views as unnecessary.

The industry's change in position on this issue is one of the key factors in the Agency's assessment of the utility of and need for the noise regulation for TMSWC's.

#### Cost and Economic Impact of Regulation

Many manufacturers and distributors, as well as their trade associations, have recently expressed the opinion that the costs of the regulation were excessive, particularly in light of the current distressed economic situation of the industry.

Although they did not in all cases dispute the Agency's estimate of \$33 million (in 1981 dollars) as the annualized cost of the regulation, several commenters recently pointed out that the capital outlay for quiet compactors



could be as much as \$50 million annually. This they believed would be an excessive burden for a relatively small industry which has fallen on hard times. A recent estimate from the industry was that compactor sales had dropped 20 to 25 percent between 1979 and 1981.

The Agency's original view was that the increased costs of production would be passed on to the vehicle purchaser and eventually to the user of solid waste collection services. Thus, it was concluded that the overall economic impact on manufacturers would be slight. However, the industry has claimed that the recent reduction in industry sales, coupled with inflationary price increases from suppliers of components and for labor, has forced manufacturers to absorb a significant portion of the cost increases to remain competitive. This action is imposing on them a burden that was not anticipated by the Agency. Further, as delineated in the discussion (below) on the responsibility of manufacturers, the industry's costs have been higher than originally estimated by the Agency as a result of higher engineering and testing costs, and current economic difficulties have affected the ability of manufacturers to absorb the costs of developing and testing quieted vehicles. This has led to an additional economic burden beyond that originally estimated.

Responsibility of Body Manufacturers for the Noise of the Complete Vehicle

The regulation holds the body manufacturer responsible for meeting the noise standard which applies to the complete vehicle. The rationale for this allocation of responsibility is outlined elsewhere in this report.

The body manufacturers contended that imposing such responsibility lays an unreasonable burden on them. They identify two major problems. The first problem is that they are unable to obtain adequate (or in many cases, any) acoustic data from the chassis manufacturers for engine operating conditions pertinent to their compaction requirements. Thus, they are unable to determine, in the design stage, the noise contribution of the chassis.

The second problem is that the customer for the compactor vehicle, in many cases, specifies or even supplies the chassis on which the manufacturer must mount his compactor body. Thus, the manufacturer is unable to design for the specific chassis ahead of time. Although the manufacturer, if he has the facilities and capabilities, could in principle test the chassis separately to ascertain its noise contribution, such tests would be time-consuming and expensive. And the manufacturer still would need to do the engineering to match the chassis, with its characteristics, to the compactor body and associated components.

Smaller manufacturers in particular report the foregoing problem, since the bulk of their orders are for one, two or a comparably small number of vehicles of a given configuration at any one time. This means that in many cases the garbage truck is manufactured as a custom vehicle and not a mass-produced one as the Agency initially believed.

The basic difficulty here is that a number of body manufacturers, particularly the smaller ones, lack the technical expertise to adopt the economically efficient approach initially envisaged by the Agency. They therefore treat each new configuration as a separate problem requiring special design and testing. In light of these recent industry inputs, the actual costs to the industry for design and testing would be higher than originally estimated.

#### Distributors' Compliance with the Regulation

In order to minimize the problems of compliance testing by distributors, the final regulation contained a provision allowing the distributor to rely on the production verification tests of the body manufacturer.

The "custom assembly" problem, characterized by a large diversity of configurations and lack of control of the chassis by the manufacturer or the distributor, was emphasized in the recent information the Agency received from the industry following publication of the final rule.

It is clear that many manufacturers and distributors continue to perceive a problem due to the potential diversity of configurations and the absence of acoustic data on chassis that they believe necessary for adequate design of noise control features to meet the regulatory noise limits. Compactor manufacturers tend to view each new configuration as a new design problem requiring detailed engineering and testing. This approach can lead to expenditures for engineering and test efforts substantially beyond the level believed necessary by the Agency in the original economic analysis.

#### Curfew or Other Local Options as an Alternative to a Uniform National Noise Standard

A number of commenters, including the city of Chicago, contended that a curfew or starting-time limitation on refuse collection operations was an effective way of reducing their noise impact and was relatively low in cost. Accordingly, these two features made curfews a preferable alternative to a vehicle noise standard. Another point in favor of curfew was that, whatever the cost, such action could be taken locally if believed necessary. Thus, it might be more cost-effective than Federal regulation which would impose costs on all communities and citizens irrespective of local needs or preferences.

Early data obtained by the Agency indicated that curfews could entail significant costs by decreasing productivity of collection which would take place during hours of heavy traffic. The larger the city, the greater the likelihood of increased cost due to a curfew. On the other hand, as the EPA's analysis shows, the bulk of the adverse noise impact from refuse collections occurs on people living in the high density residential areas. Therefore, in light of recent increases in State and local noise abatement activities it would now appear that much of the national noise impact could be reduced substantially by remedial local action. Cities can now make a local decision on whether to use the curfew approach or some other method, such as "Buy Quiet" if they deemed corrective action necessary.

#### CONSIDERATIONS FOR RESCISSION

Since promulgation of the compactor regulation, a number of developments have occurred, including: (a) the economic position of the TMSWC industry has weakened substantially since promulgation of the regulation, unit sales have declined nearly 25 percent between 1979 and 1981; (b) discussions with the industry have revealed that many compactor manufacturers regard each combination of compactor body and truck chassis as unique which results in significantly higher testing costs than were originally anticipated by the Agency; (c) a major portion of the TMSWC industry has indicated that it no longer desires the protection of national uniformity of treatment provided by the preemption provisions of the Act; and (d) bills to amend the Noise Control Act have passed both the House and Senate and would explicitly remove the Agency's authority to regulate this product.

#### Preemption Not Needed

As pointed out earlier, the preemption provisions of the Act were intended to assure national uniform standards for major sources of noise that are distributed in interstate commerce.

In support of this "uniform" approach, the National Solid Waste Management Association (NSWMA) and two major compactor manufacturers testified at the New York City public hearings in September 1977 that they favored a Federal regulation that provided a uniform national standard (although they did not agree with all provisions of the proposed regulation). However, since promulgation of the regulation, the industry, through its trade association, has reversed its position and now expresses opposition to the regulation and the preemption it affords over State and local rules. During recent open meetings, industry representatives stated that industry and customer practices lead to a diversity of configurations; consequently, the industry now sees no economic benefit in a regulation that establishes a national uniform standard.

#### Cost and Economic Effects Excessive

Section 6(c)(1) of the Noise Control Act directs the Administrator to take into consideration, among other factors, the costs of compliance in the establishment of regulations for products which have been identified as major sources of noise.

Studies by the Agency in 1975 to 1977 showed that, for the composite vehicle, i.e., truck chassis, compactor body and associated components, the potential increases in list price could range from 6.4 to 12.8 percent, with a sales-weighted average of about 10.3 percent. EPA originally estimated the equivalent annual cost of this regulation to be \$33 million. First year capital costs to vehicle purchasers due to increased prices were estimated to be \$42 million with first year increases in operating and maintenance costs estimated at approximately \$10 million (in 1981 dollars).

Analysis also indicated potential costs to compactor body manufacturers of an estimated \$6 million annually for engineering and testing. This latter estimate was based on the premise of an economically efficient design approach utilizing truck chassis conforming to Federal noise standards which became effective January 1, 1978. EPA also anticipated that compliance

testing would be carried out on a "configuration" basis; i.e, only the worst case chassis-body combination would be tested. Subsequent to promulgation of the rule, the Agency learned that, to minimize their potential liability under the enforcement provisions of the regulation, many compactor manufacturers have chosen to regard each configuration and combination of compactor body and truck chassis as unique, thereby requiring an individual noise abatement design and test effort for each configuration.

In light of the above, the costs of design and testing compactors for conformance with a national standard would be substantially more costly than initially estimated by the Agency, possibly totalling as much as \$15 million per year.

In the mid-1970's, the general economic outlook was good as was the economic well-being of the compactor manufacturing industry. The Agency originally anticipated that the increased costs of production resulting from the regulation would be passed on to the vehicle purchaser and eventually to the user of solid waste collection services. Thus, it was concluded that the direct economic effect on manufacturers would be slight. However, the industry suggests that recent reductions in sales (nearly 25 percent over the last two years), coupled with inflationary price increases for supplies and labor, have forced manufacturers to absorb a significant portion of any cost increases in order to remain competitive. This appears to be particularly a problem for the smaller manufacturers, who may lack the financial strength to withstand the potential increased economic burden of the regulation.

#### Environmental Considerations

Analysis of health and welfare effects by the Agency has led to the estimate that by 1991, the regulation could reduce the number of persons

exposed to adverse levels of noise from compactors from just under 20 million persons to about 6 million. This represents a potential reduction in adverse noise impact of approximately 70 percent.

For the most part, noise impacts from compactors are highly localized, occurring primarily along local roads and streets. Approximately half of the compactors in use are under the direct control of State and local governments through government waste collection services, and much of the private waste collection sector is subject to controls on routing, hours of operation, and number of trucks in operation. It therefore appears that the control of compactor noise by State and local governments now has the potential to mitigate the adverse environmental impacts of refuse collection operations.

State and local governments have made significant strides in noise control program development and capabilities since this product was identified as a major noise source and a candidate for Federal regulation. This is illustrated by the steady growth of State and local government noise control programs and ordinances. As of June 30, 1981, there were 272 cities with populations of 25,000 or more, that had "active" noise control programs. "Active" programs are defined as those with ordinances having quantitative noise level (decibel) limits, the commitment of personnel and budget, and an active enforcement program. Many more communities have qualitative or nuisance type ordinances, which give them the legal capability to enforce noise control if they choose to do so. In 1981, twenty-four States had enabling legislation for noise control and a number of others had programs operating under general authorization, e.g., in health departments, though not specifically mandated.

In addition to a State and local capacity to regulate the use of noisy products, EPA has worked with these governments to establish a new approach, as a new alternative to regulation, known as the Buy Quiet Program. Rather than manufacturers being required by regulation to reduce noise levels of products consistent with technological and economic feasibility, they are given the incentive to reduce those levels through competitive market forces. Currently, the market for quiet products is being organized through State and local agencies and some utilities, but could be easily expanded to the private sector market. Over 100 State and local units of government are currently participating in the Buy Quiet Program.