INDUSTRIAL IMPACT OF NOISE CONTROL

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Abstract. New emphasis on noise control will have widespread industrial impact. Increased allocations of time and money will have to be made in research and development (added targets for given products to meet, needed new products), manufacturing (additional increments upon manufactured items and additional controls upon the process itself), distribution, warranties, and advertising. Specific examples are cited: (1) one of the most intractable aspects of the highway noise problem is tire noise, which increases with speed and loading if presently known design practices are followed; some present research leads are discussed, (2) vacuum cleaners can be made much quieter with relatively low added cost; however, quiet vacuum cleaners have not sold in the past since the public feels the noise is a sign of adequate cleaning capacity, which presents an advertising challenge, (3) present lumber cutting techniques cannot be performed without high noise levels; suitable alternatives are not apparent and a very fragmented industry finds necessary research and development costs hard to fund.

The newly increased emphasis on noise control will have widespread industrial impact. This subject is so broad that no brief paper can do the least justice to it. For this reason, I will try to outline the areas and directions of major impact and then give a few specific examples which can serve to illustrate the theme.

The fundamental effect of any new development upon industry is seen in its effect upon the two major judgement areas of industrial operations: allocation of managerial attention and of money. As to the first, it can safely be said that the increasing attention being given to in-plant noise by the passage of the Federal Occupational Safety and Health Act (OSHA) with the attendant need for expensive controls, and the rising public interest in product noise ensure that the problem of noise has the attention of management. Management has found itself caught short by rising costs caused by unanticipated air and water quality requirements. In the long list of things to be studiously avoided by corporate management, large unanticipated and non-productive costs are a very high priority item. Having seen the effects of failure to anticipate rising demands in other environmental fields, most men who report to boards of directors are today taking care to give a good look at noise problems with the view of being prepared. So noise has, and will have, real attention at the top executive level.

Nearly everything else a company does about a problem translates rather soon into money. Of course, if adequate time is not available, then the money costs can dramatically escalate. So time is always a part of the money decision. Noise control will cause increased allocations of money throughout the typical manufacturing company, but four areas stand out: research and development, manufacturing, distribution, and advertising.

The research and development is primarily directed at the problems of meeting tighter noise standards upon the product line while keeping other necessary qualities...
and doing this at a cost which is competitive. Whenever any new requirement arises, this last is always a vital item. It is usually a relatively simple matter to figure out a method to meet some new product specification. The crux of the thing is to be sure that your cost of doing so will not be significantly more than that of your competitors. This is the aspect of the effort which will usually eat up your research and development dollars until industry experience settles upon a generally accepted technique.

Where the manufacturing process is unique, then the problems of plant noise control will also involve research and development costs. Normally, however, plant noise control is a research problem for the vendors of industrial equipment and a cost and scheduling problem for the manufacturers. In industries where equipment replacement does not generate sales large enough to create well-financed vendors, a real problem develops: how is the necessary research and development of new equipment to be financed? The phasing of new products into the assembly process is not normally a difficult matter unless the new requirements have dramatically changed the product. In such a case, real problems can arise.

Noise control can cause two major problems for the distribution section of a company: local variations and warranties. Where different states have different requirements, a major control problem is created. Great care must be exercised to ensure that products are shipped to that state where they meet the requirements. The many practical difficulties in doing this were one of the arguments in favor of the passage last fall of HR 11021, a federal act which largely pre-empts state control of product noise requirements. Noise controls also create a warranty problem. As a non-lawyer, I will oversimplify the law in this matter by saying that, if you offer a thing for sale, the buyer has a right to assume that it will meet the law's requirements. Obviously, this is primarily a problem for the research and development staff. However, two distribution problems arise: (1) unpredictable things which can happen to a product in the hands of the public, and (2) cases where an error was made (and not caught) in the manufacturing process. Obviously, both of these are not peculiar to noise problems, they are just made more complex and difficult by noise regulations.

Advertising is the other major area of manufacturing which is affected by noise controls. Here, the problem is tied to a general public opinion that the noise produced by a thing is directly related to the power it is generating. When any particular piece of equipment is considered, this is true. The difficulty comes when two different competitive items are compared in the marketplace. The noisier one is normally considered more powerful and it will generally be easier to sell. This has been found true even in fields where it was assumed that buyers were quite sophisticated. So the manufacturer is placed upon the horns of a dilemma: to barely meet the required standard and accept the problems which normal variation will impose upon his manufacturing and distribution people or to be significantly quieter than the standards and throw the challenge to his advertising people to attempt to make this a virtue instead of a handicap. Either choice is easier said than done.

Having expounded some glittering generalities, now let me give a few specific