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HEARING CONSERVATION IN BRITISH STEEL

DAVID J. EVANS

HEAD OF HEALTH AND SAFETY, BRITISH STEEL plc

1. INTRODUCTION

Noise is the most common workplace hazard in the steel industry world-wide. This is inescapable because of the nature of the processes carried out and has therefore received considerable attention in order to achieve proper levels of protection. This paper explains some of the background to the understanding of the noise problem and the progressive way in which it is being tackled.

2. THE PROBLEM

The first suggestion of a relationship between occupational noise and hearing loss occurred around the turn of the century, in connection with Glasgow shipyard workers. However, it was not until the 1960's that a clear quantifiable link was established.

In 1972 the Health and Safety Executive produced a "Code of Practice for reducing the exposure of employed persons to noise" and around the same time the first civil law claims started to appear.

It is now recognised that the problem of noise-induced hearing loss in heavy industry is widespread and so the need for preventive measures is equally extensive. The rapid rise in civil law actions and the courts' perception of risk, have led affected employers to implement measures in excess of those required by statute law.

So far as the steel industry is concerned exposure to potentially harmful noise is one of the most common occupational health hazards with up to 30% of our employees potentially at risk.

The cost of compensation payments for loss of hearing by current and, more frequently, retired British Steel employees is currectly running at many millions of pounds per annum. These payments are made by agreed criteria without court action to establish negligence. However great these costs are they need to be kept in true perspective as unfortunate, necessary, but short term costs relating to historical rather than current levels of noise exposure. We confidentially expect that the disability which the cost represents will diminish and eventually disappear as the self-imposed protective and control strategies have increasing effect.

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The development of emergence of noise at work as a real occupational health problem since the turn of this century is a classic example of one of the recurring themes in health and safety: what should we do when faced with a possible, but unproven, suspected risk of damage to health? Identified as a possible but not well substantiated risk at the turn of the century hearing loss due to noise exposure only became generally recognised as a proven quantifiable risk in the 1960's. In that intervening period of a half century or so the classic dilemma facing employers and employees alike was whether and to what extent, using what means action should be taken to protect against a possible hazard which had an unquantified risk.

3. THE EMERGENCE OF A NOISE PROBLEM

* Early 1900's - the first suggestion of a link between occupational exposure to noise and hearing loss in Glasgow shipyard workers.
* 1960's - a clear quantifiable link firmly established.
* 1972 - Department of Employment issue "Code of Practice for Reducing the Exposure of Employed Persons to Noise"
* 1974 - Woodworking Machines Regulations, Agriculture (Tractor Cabs) Regulations, the first statutory Regulations to specifically address prevention of hearing loss at work.
* 1981 - HSC publish proposals for Regulations applicable to all workplaces.
* 1982 - European Commission published proposals for a Directive on Protection of Workers from Risks Related to exposure to Noise at Work
* 1986 - EEC Directive on Protection of Workers from Risks Related to Exposure to Noise adopted.
* 1987 - HSC publish proposals to implement the EEC Directive in the UK.
* 1989 - Noise at Work Regulations made.
* 1990 - Noise at Work Regulations come into operation 1.1.90.

4. BRITISH STEEL'S 1981 ACTION PROGRAMME

* Some individual steel Companies recognised the hearing risk from noise and were taking action to limit employee noise exposure eg. noise surveys, preventive action, audiometry in the 1960's, long before the Department of Employments 1972 Code of Practice.

* Nationalisation resulted in a more systematic and more uniform approach from 1970 onwards culminating in the publication in 1981 of a "Corporation" policy on Noise supported by three guidelines:-

  - Personal Protective Equipment
  - Low Cost Engineering-based Noise Control
  - Provision of Sound Insulated Cabins and Control Rooms

  An important tool introduced in this period in the longer term control of noise exposure was the mandatory Engineering Standard requiring suppliers of plant to provide information on the noise emission of their products and setting limits on such emissions as a requirement for the acceptability of the plant.

* In 1982 the "Six-Point Plan" for hearing conservation was adopted reinforcing the 1981 policy. This focussed on the action that needed to be taken across the industry to identify and control exposure to noise levels where these exceeded 90dB(A). The key measures were:

  1. Noise surveys.
  2. Implementation of control/corrective measures.
  3. Warning Signs.
  4. Education, information and training.
  5. Hearing protection.
  6. Audiometric testing.

* Noise Surveys have been undertaken in all BS Works to measure sound levels and provide frequency analyses. Repeat surveys are being performed where there is a significant change in plant or operations. The survey reports include advice on engineering control, provision of sound insulated refuges, the suitability of hearing protection and definition of the boundaries of hearing protection zones.

* Education, information and training have been directed both at new employees and those working in defined noise hazard areas. Measures have included the showing of videos and circulation of booklets. A new video is planned, directed at engineering personnel, and a distance learning package is also to be produced.

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* Audiometry is carried out throughout the Corporation on new employees and is available on a voluntary basis, at three yearly intervals, to those working in noise hazard areas.

* Hearing protection is generally available. Usually a choice of ear plugs or muffs of a standard type is offered. In certain areas the noise levels require alternative muffs which provide greater attenuation. The wearer acceptability, attenuation and cost are taken into consideration when deciding on the purchase of a standard type of protection.

* Businesses have nominees on the Noise Control Engineering Group which oversees developments in hearing conservation.

5. 1989 NOISE AT WORK REGULATIONS

The key elements in these Regulations which implement the 1986 EC Directive are:

* THREE "Action Levels":
  - 85dB(A) (first action level)
  - 90dB(A) (second action level)
  - 200Pa (peak action level)
* Assessment of Exposure
* Assessment Records
* Reduction of risk of hearing damage to lowest level reasonably practicable
* Reduction of Noise Exposure to below Second Action Level and Peak Action Level by means other than hearing protection so far as is reasonably practicable
* Provision of Hearing Protection for those exposed above the First Action Level but below the Second Action Level
* Provision and use of Hearing Protection at levels above the Second Action Level and Peak Action Level
* Protective Measures to be used and maintained
* Information, Instruction and Training to be provided to employees and others who might be exposed
* Hearing Protection zones to be defined by notices (ie. any area where the Second Action Level or Peak Action Level are exceeded).

* manufacturers of articles for use at work to provide information about risks/precautions if the first action level or peak action level is likely to be exceeded.

Note the Directive's provisions with regard to making audiometry available to employees is not addressed in the Regulations. It is considered that the existing facilities available under the national health service are sufficient.

6. BRITISH STEEL'S CURRENT HEARING CONSERVATION PROGRAMME

Following adoption of the EC Directive in 1986 with the prospect of new UK Regulations being developed to implement the Directive, British Steel decided it was an appropriate time to review its policy and "Six-Point Plan".

This review lead to the development and adoption of a Nine-Point Hearing Conservation Programme in 1988. The new programme essentially reinforces the Six-Point Plan and, fully taking account of the provisions of the 1989 Regulations, in a number of respects goes further than the Regulations in order to meet the particular circumstances of our industry.

The key elements of the new Programme are:

* Identify and designate by signs areas where average noise levels exceed 85dB(A) - tighter than the 1989 Regulations or the Company's earlier Six-Point Plan. Re-assess areas if any change in plant/operations.

* Apply Engineering Control to reduce noise levels. Review these at re-assessments. New plant is required to meet noise criteria set out in the Engineering Standard "Limitation of Noise from Plant and Equipment".

* Employees to wear hearing protection in noise hazard area, ie. areas where exposure exceeds 85dB(A) Leq. Failure to be regarded as a disciplinary matter. The requirements to use protection above 85dB(A) Leq is more stringent than the 1989 Regulations.

* Insulate Control Pulpits/Provide Noise Refuges in areas exceeding 85dB(A) Leq.

* Perform periodic audiometry on all new employees and those entering areas exceeding 85dB(A) Leq.

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* Advice on selection of hearing protection to be given when noise levels assessed. Maintain and keep records of individual issue

* Keep records of education, training, issue and use of hearing protection and disciplinary action. Also keep records of medical aspects of audiometry.

* Provide information, instruction and training on care and application of hearing protectors and other control devices.

* Primary responsibility for hearing conservation to rest with the line manager who will be trained to ensure adequate knowledge of key aspects

7. CONCLUSIONS

It is inconceivable that steel could ever be produced without generating noise which will therefore continue to present a potential hazard to a significant proportion of the industry's workforce. British Steel has adopted and periodically refine its systematic approach to hearing conservation through noise surveys, noise control and, where necessary, the provision and use of effective personal protection. This is supported through the application of a purchasing standard limiting noise from new equipment and in time it is expected that noise conservation areas will be further contracted and even less dependence will have to be placed upon personal protective equipment. The Company is already applying stricter noise exposure control than will be required by the 1989 Regulations.

Audiometric surveys which will not be required by the Regulations indicate that the prevalence and degree of noise induced deafness amongst employees has stabilised and is now reducing.

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