

THE ENGINEERING INDUSTRY NOISE TASK GROUP

SUMMARY

This paper presents a background brief on the work of the Engineering Industry Noise Task Group (EINTG).

BACKGROUND

1. At the 46TH meeting of the SSHSCC David Alison offered to provide members with an update of the work of the EINTG, which members agreed would be useful. The brief is attached as appendix 1. Other papers are attached as listed in the briefing paper. For those members who receive the SSHSCC papers by e-mail the papers referred to in the brief as “Noise control: determine the best options” and “Top 10 noise control techniques” will be sent out by post as they are not available electronically.

ACTION

2. Members are asked to note the contents of the attached papers and to raise any comments or queries that they may have on the papers at the 47TH meeting.

3. In particular, members are asked to note the last paragraph of Mr Allison's paper in which he:

- offers at the next EINTG meeting, to raise any concerns that members may have regarding noise or any improvements they have made in this area; and
- requests suggestions on how to “spread the message.”

To: Members of the SSHSCC

February 2003

Engineering Industry Noise Task Group (EINTG)
Report by David M. Allison, Chairman Marine Painting Forum

Having been invited by the HSE (Graham Watson) to join the EINTG to rectify the lack of representation from the shipbuilding and shiprepairing sector I have now attended three meetings of that body. At the 46th Meeting of the SSHSCC I undertook to provide members with an appropriate report.

The EINTG has Terms of Reference, a Mission Statement and a Business Plan commencing 2001. Copies of these documents were issued at the 42nd SSHSCC. The principal task at the moment is to "spread the word" concerning requirements and good practice. So far, I believe that there has been more talk than action. However, I am unaware of the efforts made by members to promulgate the message within their particular sectors of the overall engineering industry. Certainly, the SSHSCC has not, perhaps, shown a great deal of interest in the noise related tasks facing the industry as so much attention has been, and is being, given to consideration of work in Confined Spaces, this being an on going problem with recent fatal results.

Graham Watson is Secretary of both the SSHSCC and the EINTG. The meeting scheduled for January 2003 was cancelled.

The first meeting, which I attended was rather dominated by consideration of the draft EC legislation and the amendments tabled for consideration by the European Parliament. There was much talk of lobbying MEPs and MPs in which I did not really participate as I was unwilling to undertake any lobbying on a topic to which I was newly arrived (although I spent some five years working on such matters previously, but that was rather a long time ago!). Certain proposed amendments to the Directive were accepted by the Parliament, others were rejected or amended. The measures as agreed are considered to pose considerable challenges to industry. However, it is generally considered that the challenge can be met.

Of course, in the marine industry there are many noise sources. It is really impossible to have an HAV problem without an attendant noise problem although it is quite possible to have a noise problem without any attendant HAV problem as was demonstrated by the measurements taken at the hands (and ears) of an operator using a UHP jetting lance.

I also enclose a copy of "Report on Contribution of HSE's Engineering and Utilities Sector to HSE's Field Operating Divisions Programme on Noise 2001/2" attached as appendix 2. Apart from anything else, this summary indicates that, despite their being required by existing legislation, quite apart from the new Directive, noise assessments are not undertaken by a significant percentage of companies. Of those undertaken a significant percentage are considered to be inadequate. This is to be addressed. It should be noted that

there are many “predatory” consultants out there producing over-padded reports which are not necessarily what is required for a useful assessment. While much of the information should be included in annexes to the report the actual report needs to be fairly simple with clear recommendations for action, should action be required, of course. The EINTG is meant to be producing guidance on “model” assessments and this ought to be included on the EINTG’s web site when such is up and running!

The requirements for noise assessments are specified in the publication “Reducing Noise at Work” (Guidance on the Noise at Work Regulations 1989, ISBN 0-7176-1511-1). This publication is, in fact, pretty good and I would expect that the appropriate managers in member companies have copies. However, when at the October meeting of the EINTG representatives of HSE Publications tabled a copy of this document, I was certainly the only one present who pulled one from his briefcase and said “snap”. However, this does not mean that other people do not possess, it but I have my doubts. I also enclose a copy of a paper entitled “Noise Assessments – The Good, The Bad & The Ugly” attached as appendix 3.

In shipbuilding and ship-repair, noise assessments will require information of and measurements of operations not in progress at the time. The assessment may require that special ‘demonstrations’ of processes are undertaken to enable the necessary measurements to be made. Clearly, this is often impractical in our industry. I suggest that a national database of noise measurements should be established. Although variations in processes and environments will clearly lead to problems and to inaccuracies, the information generated should be no more ‘suspect’ than that generated from specially arranged demonstrations. Should this proposal meet with favor, someone will have to hold, and to maintain, the database.

Just to keep you interested, amused or anaesthetised with statistics I also enclose a copy of a paper entitled “Analysis of Noise Single Issue Inspection Programme (2000/01)” attached as appendix 4.

Tabled for the October meeting of the EINTG were two interesting papers which, unless I was asleep at the time, were not actually discussed. One is entitled “Noise Control : Determine the Best Option” attached as appendix 5 – paper copy only) and is quite useful as an aide memoir. The second, entitled “Top 10 Noise Control Techniques” is also enclosed as appendix 6 (paper copy only). I am not entirely convinced by the “Top 10” paper in that I believe that an essential measure is to ensure that equipment is correctly and regularly maintained. This does not appear to feature. Further, when discussing flexible mounting of equipment the need to ensure that there are no noise shorts seems to be ignored (although such is adequately covered in the book previously mentioned).

On 29 November 2002 I attended the first (of a series of two) presentations, by the HSE, on the Physical Agent Directive (Noise), its implications and its implementation, to representatives of a wide range of industries, to academics and to consultants. Facsimiles of the viewgraphs for the main presentation

are enclosed as appendix 7 for paper copies only (electronic copy attached separately). During the question and answer session, it became apparent that those representing SMEs were concerned about the cost implications for their competitiveness and their survival, whereas larger companies were concerned that SMEs would not be subjected to the same level of scrutiny by Inspectors, thus enabling them to circumvent or to ignore the regulations, thus avoiding the costs involved!

I thought, perhaps wrongly, that some people were confusing the requirements of the Noise Directive with those of IPPC. I raised the question of Article 4, para 6(h), of the Directive, which states "the employer shall give particular attention, when carrying out the risk assessments, to the following: (h) the extension of exposure to noise beyond normal working hours under the employer's responsibility:". Members of the EINTG had interpreted that to mean that, where possible, exposure to noise during leisure activities (such as that I am told is now referred to as "clubbing") are to be included in the assessment of a worker's exposure. Members agreed that it would be considered unacceptably intrusive to question employees about their leisure activities. I sought guidance about how this was expected to be handled.

The HSE's response at this presentation was that the paragraph was intended to apply to overtime, not to activities outside the workplace! As H & S regulations apply, I believe, to the total work activity and not merely to an arbitrary number of hours of work, I consider that the intent of this paragraph is as the EINTG believed. This point needs clarification!

Shipbuilding now seems to be somewhat quieter than it was in the 1960s and 1970s (quite apart from the reduced level of activity) but certain processes are inherently noisy, and the Directive will present challenges.

The next meeting of the EINTG is scheduled for 20 May. I would be glad to raise any concerns communicated by members or to present any examples of measures taken or improvements made. Any thoughts on promulgating "the message" will be welcomed.

APPENDIX 2

REPORT ON CONTRIBUTION OF HSE'S ENGINEERING AND UTILITIES SECTOR TO HSE'S FIELD OPERATING DIVISIONS PROGRAMME ON NOISE 2001/2

INTRODUCTION

1. The Sector's contribution to the noise programme is part of a long-term strategy to reduce exposure to noise in engineering. In 2001/2 the objectives were that in those premises visited where the second action level was exceeded: i) an adequate noise assessment had been carried out and; ii) a noise action plan based on the assessment had been produced.

2. The noise action plan was to: i) include a positive purchasing policy for new equipment; ii) specify noise-reducing installation methods when installing/relocating machines (where this was a relevant precaution, e.g. presses); iii) aim to eliminate or replace tools/machines and processes which exposed employees to excessive noise levels; iv) identify engineering controls to reduce exposure to noise so far as is reasonably practicable; v) seek to reduce the numbers exposed by re-organising the work and workshop layout where engineering controls were not reasonably practicable; and vi) set down a policy for selecting, issuing (including training) and maintaining PPE until engineering controls were in place or where a risk to hearing remained after such measures had been taken.

3. Inspectors were asked to raise the above issues at preventative inspections of engineering premises where the second action level was exceeded. A total of 300 premises were to be visited nationally, heavy fabricators in particular were to be targeted.

IMPACT

4. A total of 303 relevant contacts were made. These included 19 check visits made to assess compliance with Improvement Notices issued as part of the initiative. In addition 22 follow on visits were also made regarding noise, hence a total of 262 different premises were visited.

RESULTS

5. The following is a summary of some of the key issues raised:

i) Noise assessments

249 contacts raise the issue of noise assessments (82% of all contacts). This includes 136 occasions where there was one (45% of all contacts) and 112 occasions where there was not (37% of all contacts).

Where there was a noise assessment they were referred to as following:

ADEQUACY OF NOISE ASSESSMENTS	Number of noise assessments	Percentage of noise assessments
Adequate	50	37

Not adequate	46	34
Insufficient information either way	38	30

Hence, 158 contacts (52% of all contacts) either did not have a noise assessment or the noise assessment was said to be inadequate. The premises where there was either a follow up visit or a notice check visit had both the first and second visits included in the analysis. Assuming such premises initially fared badly with regards to noise assessments then the inclusion of both their visits in the analysis will indicate an overly negative picture, especially if at the second visit the quality of their assessments had improved. However, even the data is amended to compensate for this by reducing the number of contacts where there was either no assessment or the assessment was inadequate by the total number of follow up visits (44 visits in total), this still leaves 117 contacts where there was not an adequate noise assessment. This can also be read across to reflect 117 premises, which did not have an adequate noise assessment (45% of all premises visited).

Where the noise assessment was said to be inadequate this was attributed on 14 occasions to it discussing solely noise levels as opposed to noise exposures. On a further 19 occasions the assessment required review, either due to changes in the process or in the machinery used.

Consultants had produced some of the noise assessments, which were felt to be inadequate. The main criticism being a lack of information regarding noise control measures, the main focus being on the provision of ear protection.

ii) Noise reduction at source

Inspectors were asked to comment on the existence of a noise action plan, while very few contacts contain any such reference 193 contacts (64% of all contacts) refer to controlling noise at source. These break down into the following:

USE OF NOISE REDUCING METHODS	Number of contacts	Percentage of contacts referring to controlling noise at source
Currently reducing noise at source	74	38
Plan to reduce noise at source	15	8
Not feasible to reduce noise at source	22	11
Not controlling noise at source and no plans to do so, where such action would be reasonably practicable.	74	38

iii) Ear protection

237 contacts indicate that ear protection was provided where required. 5 contacts indicate that it was not provided where it should have been. Where ear protection was provided its use was as follows:

USE OF EAR PROTECTION	Number of contacts	Percentage of contacts referring to ear protection
Widely worn	94	40
Inconsistently worn	77	32
Insufficient data	66	28

79 contacts refer to training, information and instruction in the use of ear protection. This was provided on 49 occasions, 8 of which required improving. 15 contacts refer a choice of ear protection being available, 12 state that the ear protection was maintained while 4 state that it was not.

iv) Ear protection zones

88 contacts state that ear protection zones had been established; a further 18 refer to cases where EPZs were felt to be required but were absent. Where EPZs had been provided they were said to be adequate in 55 cases (62%), not adequate in 25 cases (28%) and 8 contained insufficient information. Where EPZs were inadequate reasons given included poor signage and a failure to include all relevant areas of the factory.

ENFORCEMENT ACTION

6. A total of 49 improvement notices were issued in connection with the following issues:

IMPROVEMENT NOTICES ISSUED	Number of notices issued	Percentage of notices issued
Noise assessment only	35	71
Noise assessment & control	4	8
Noise assessment & action plan	1	2
Noise assessment & info/instruction	1	2
Control only	1	2
Provision of ear protection	1	2
Creation of ear protection zones	2	4
Maintenance and use of ear protection	1	2
Information/instruction and training	3	6
TOTAL	49	100

CONCLUSIONS

7. The objective of ensuring that in those premises visited there was an adequate noise assessment has clearly not been met given the large number of contacts where either there was not a noise assessment or the noise assessment was inadequate. The same can also be said for ensuring that these premises had a noise action plan. The extensive use of ear protectors indicates that employers are continuing to place too much reliance on them as a means of controlling exposure to noise rather than reducing noise at source.

APPENDIX 1 – SOURCES OF NOISE EXPOSURE

1. Frequently quoted sources of noise and their associated noise levels (where given) are detailed below:

airlines (90 – 93dB(A)), hammering, saws (chop saws, friction saws, mitre saws (>90dB(A)) etc.), punch presses (>90dB(A)), power presses, guillotines ((90dB(A)).

2. One of the highest noise levels reported was associated with riveting, the dB(A) for the riveter and the “dolly” operator were 104 and 113 respectively.

3. The most commonly quoted source of noise was the use of angle grinders, noise levels reported ranged from 90dB(A) up to 100dB(A). While there was very little exposure data the angle grinder generating 90dB(A) was said to be used for up to 8 hours each day. Reference is also made to the use of an angle grinder generating a Lepd of 93 dB(A).

APPENDIX 2 – CONTROLLING NOISE AT SOURCE

1. The following methods of controlling noise at source were quoted:

- i) Changing a spray gun in a spray shop to an airless spray gun reduced noise level from 93 dB(A) to 82 dB(A).
- ii) Fitting a noise enclosure to a blanking press reduced the noise level by 16 dB(A).
- iii) On a wire drawing machine an intermittent noise level of 100 dB(A) was generated where the rod coil was loaded onto the payoff bobbin. Rubber damping and acoustic panels were fitted and reduced the noise level by 5 dB(A).
- iv) A bearing company went from the SAL to the FAL by using compressed air silencers, acoustic hoods and rubber lining on metal bins.
- v) The noise levels on a chop saw were significantly reduced by using better clamping of work piece, use of suitable pads and coolant.
- vi) A metal cutting guillotine had noise damping material fitted to its exit chute to successfully reduce the noise level.
- vii) Using anti-vibration mounts and changing its bearings frequently reduced the noise generated by a linnishing machine.

- viii) Acoustic deadening hoods were incorporated into the guarding of lathes and stock bar tube liners were used to reduce the noise generated by automatic stock feeding.
- ix) A brush bed table was used on a press instead of a metal bed to reduce the noise level.
- x) To reduce noise levels in a fabrication shop it was lined with noise absorbent panels and large fabrications were worked on top of boxes filled with sand.
- xi) A foundry used rock wool on the inside of steel stillages to reduce their noise levels.
- xii) Noise levels were reduced to 92 dB(A) by fitting magnetic rubber sheeting to clad sheet steel whenever hammering of steel takes place.

APPENDIX 3

Noise Assessments – The Good, the Bad & the Ugly

This information sheets provides information on what you should expect to see in a Noise Assessment. You can use it to;

- help specify what you want when engaging an outside consultant to carry out a noise assessment, or
- help you decide if the noise assessment gives you the information you need to be able to carry out your duties as an employer to reduce the risk of hearing damage and control the noise exposure of your employees.

Exposure to high levels of noise causes deafness and other types of hearing damage. An employer has a duty under health and safety law to reduce the risk of hearing damage to their employees by controlling exposure to noise (*Noise at Work Regulations 1989*). To properly carry out this duty, the employer needs to know which of his or her employees is at risk, and what the level of that risk is. What's more, in order to plan a programme of measures to control exposure and reduce the risk of hearing damage, the employer also needs to know what is causing the risk (what processes, machines, etc) and what are the priorities for action.

The key to obtaining this information is the Noise Assessment. The *Noise Regulations* require the employer to obtain an *adequate* noise assessment, which will *facilitate* compliance with duties relating to controlling noise exposure, providing suitable hearing protection, marking out ear protection zones and giving information, instruction and training to employees.

The Noise Assessment is the start of the process, not the end. Don't just file your assessment away. Use it to carry out your duties to reduce the risk of hearing loss and control noise exposure.

The question is, how does the employer know what an *adequate* assessment consists of. Regardless of whether the assessment was carried out in-house, or was done by a paid consultant, it is up to the employer to take reasonable steps to satisfy himself or

herself that the person responsible for producing the assessment is competent, and that the assessment meets the requirements of the regulations.*

In brief, a noise assessment should:

- State whether you have a noise problem,
- Tell you which employees are at risk, and why,
- Give you enough information to allow you to prioritise and plan a programme of control measures,
- Let you know what proper steps to take to control the immediate risk (hearing protection, warning signs),
- Help you to instruct, inform and train your employees about these issues.

The table that follows shows you what you should or could expect to see in three different standards of noise assessment; one which meets the minimum legal requirements ('Adequate'), one carried out by a competent and conscientious person with a good knowledge of the legal and technical aspects of noise and its control ('More than Adequate'), and one produced to a very high standard by an experienced and competent person ('First-rate').

<i>Content</i>	<i>Adequate (Minimum legal requirement)</i>	<i>More than Adequate</i>	<i>First-rate</i>
Purpose of assessment (legal basis)		✓	✓
Identification of those employees likely to be at risk of hearing damage (either names of employees, named groups of employees, or named tasks)	✓	✓	✓
Daily personal noise exposure ($L_{EP,d}$) of those likely to be exposed at or above the first action level (calculated from levels of noise and times of exposure during working day)	✓	✓	✓
Levels of noise and times of exposure during working day used to calculate $L_{EP,d}$		✓	✓
Peak noise exposure of those likely to be exposed at or above the peak action level	✓	✓	✓
Indication of employer's and employees' legal duties relevant to levels of exposure.	✓	✓	✓
Identification of sources of noise giving rise to the risk	✓	✓	✓
Summary of existing noise control measures		✓	✓
Analysis of effectiveness of existing noise control measures			✓
Suggestions for priorities for control of noise (where necessary)		✓	✓
Hearing protection	State whether what is currently in use is adequate.	✓	✓
	Suggestions for suitable alternatives.	✓	✓

* Consultants have responsibilities under health and safety law to provide satisfactory advice, and action could be taken against them if they fail to do that, but the primary duties rest with the employer.

<i>Content</i>		<i>Adequate (Minimum legal requirement)</i>	<i>More than Adequate</i>	<i>First-rate</i>
	Which areas require marking as 'Ear Protection Zones' (and correct sign to use)	✓	✓	✓
	Reference to standard criteria (BS EN 458) for selection of 'suitable' hearing protectors			✓
Name of person responsible for the assessment		✓	✓	✓
List of equipment used			✓	✓
Description of work activities assessed		✓	✓	✓
Photographs			✓	✓
Annotated sketch plans of work areas			✓	✓
Information on requirements for health surveillance (hearing checks) (where necessary)			✓	✓
Suggested noise control solutions			✓	✓
Reference to and/or copies of relevant published noise control solutions (e.g. HSE industry-specific guidance)			✓	✓
Reference to and/or copies of general published guidance and information on noise (i.e. to facilitate training of employees).		✓	✓	✓
Employee training materials (e.g. a handout)				✓
Advice on low-noise purchasing policy				✓
Glossary of terms			✓	✓

There are some tell-tale signs that a noise assessment is *not* adequate;

- Noise measurements don't relate to the jobs or tasks people carry out – they are simply spot readings taken around the workplace.
- Noise exposures ($L_{EP,d}$) are not quoted.
- No reference to legal duties (Noise at Work Regulations 1989) or Action Levels.

Some consultants attempt to show the value of their assessments by providing lots of information, such as listed below.

- Long print-outs from noise-measuring instruments such as dosimeters, noise meters with frequency analysis.
- Detailed calculations on the performance of hearing protectors
- Advice on noise control which is general, i.e. not specific to the noise problems you have.

Whilst there is nothing wrong with providing additional information, you should make sure that the assessment actually gives you the information you need to carry out your duties.

Also, be aware that the while the noise assessment should be reviewed if there is reason to believe that it is no longer valid (e.g. new machinery has been installed, working practices have changed, the layout of the workplace has changed), there is no legal requirement to review after a set period. Good practice would be to carry out an informal review every two years, to decide whether a full review is necessary.

Specify the noise assessment correctly, check that you get what you need, and then use it to plan and implement your programme of noise control and risk reduction. Protect your employees and comply with the law.

APPENDIX 4

ANALYSIS OF NOISE SINGLE ISSUE INSPECTION PROGRAMME (2000/01)

Inspectors rated employers' performance against the following criteria:

<i>A. NOISE ASSESSMENT</i>					
	<i>1. No noise assessment undertaken</i>	<i>2. Subjective assessment inadequate, incomplete or out of date</i>	<i>3. Objective risk assessment by competent assessor. No plan for reduction</i>	<i>4. Objective risk assessment undertaken as in 3 and regularly reviewed. Prioritised action plan for reduction</i>	
<i>Number of engineering employers* at 1st stage of visits</i>	<i>262 (52%)</i>	<i>137 (27%)</i>	<i>69 (14%)</i>	<i>31 (6%)</i>	
<i>Number of all employers at 1st stage</i>	<i>1189 (52%)</i>	<i>553 (24%)</i>	<i>367 (16%)</i>	<i>198 (8%)</i>	

** For SICs metal structures, forging pressing, other fabrication metal, general mechanical engineering and shipbuilding*

B. USE OF NOISE CONTROL EQUIPMENT				
	1. Widespread evidence of misuse, i.e. doors left open	2. Some defects in use evident	3. No evidence of misuse	4. Proactive system to ensure proper use of controls
Number of engineering employers* at 1 st stage of visits	3 (2%)	4 (3%)	121 (78%)	27 (17%)
Number of all employers	16 (1%)	80 (7%)	773 (72%)	204 (19%)

C. MAINTENANCE OF NOISE CONTROL EQUIPMENT				
	1. No evidence of any maintenance	2. Breakdown maintenance only	3. No defects evident	4. Planned preventative maintenance schedule in place
Number of engineering employers* at 1 st stage of visits	5 (3%)	10 (6%)	133 (82%)	14 (9%)
Number of all employers	37 (4%)	69 (7%)	789 (76%)	141 (14%)

D. PROVISION OF EAR PROTECTION				
	1. No ear protection available	2. Available on request, not provided, not suitable or not compatible	3. Provided, little choice	4. Suitable for individual and task, compatible with other PPE
Number of engineering employers* at 1 st stage of visits	22 (4%)	48 (9%)	194 (37%)	266 (50%)
Number of all employers	134 (6%)	202 (8%)	874 (37%)	1175 (49%)

E. MAINTENANCE OF EAR PROTECTION				
	1. Widespread defects/misuse evident	2. Isolated defects or misuse	3. Maintenance or replacement when faults reported	4. Maintenance/replacement according to schedule with regular checks by competent person
Number of engineering employers* at 1 st stage of visits	12 (3%)	38 (8%)	361 (76%)	61 (13%)
Number of all employers	38 (2%)	180 (9%)	1644 (78%)	252 (12%)

F. USE OF EAR PROTECTION				
	1. No evidence of use	2. Patchy &/or inappropriate. <50% of those at risk – no management checks on use	3. Reasonable 50-90% of those at risk. Management tries to enforce	4. Use good by >90% of those at risk. Strong management lead. Visitor provision
Number of	57	99 (20%)	179 (37%)	147 (30%)

engineering employers* at 1 st stage of visits	(12%)			
Number of all employers	230 (11%)	368 (17%)	761 (35%)	803 (37%)

G. TRAINING

	1. No training or information provided	2. Limited training provided for some at risk or inadequate	3. Reasonable training	4. Good quality training backed-up by periodic refresher, posters etc.
Number of engineering employers* at 1 st stage	143 (29%)	153 (31%)	174 (35%)	20 (4%)
Number of all employers	523 (24%)	697 (32%)	844 (38%)	146 (7%)

H. DEMARCATION OF EAR PROTECTION ZONES

	1. No noise hazard warning signs or marked EPZs	2. Limited signage (i.e. not all hazard zones covered) or prescribed signs not used	3. All zones correctly demarcated but not fully observed	4. All zones demarcated and use of PPE managed, visitor provision. Noisy mobile machines marked etc.
Number of engineering employers* at 1 st stage of visits	178 (47%)	80 (21%)	58 (15%)	63 (17%)
Number of all employers at 1 st stage.	704 (40%)	423 (24%)	254 (14%)	373 (21%)

Improvement Notices Issued (all employers)

	Number of Notices	% of Notices issued
Noise assessment	231	60
Use of noise control measures	1	0.2
Maintenance of noise control equipment	2	0.4
Provision of ear protection	17	4
Maintenance of ear protection	15	4
Use of ear protection	37	10
Training	44	11
Demarcation of ear protection zones	39	10