Some implications of the Noise Policy Statement for England for the regulation and permitting of industry by the Environment Agency of England and Wales

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ABSTRACT

The Noise Policy Statement for England (NPSE), published by Defra in March 2010, describes a 'policy vision to facilitate decisions regarding what is an acceptable noise burden to place on society'. The publication of the NPSE coincided with the formal adoption and publication of the Noise Action Plans as required by the Environmental Noise (England) Regulations 2006 (as amended) and the Environmental Noise Directive. However, the potential implications of the NPSE go much wider. The Environment Agency in England is currently reviewing and rewriting its Horizontal Guidance for Noise. The updated guidance will be consistent with the aims of the NPSE, not least because the NPSE is largely consistent with the fundamental principles of the Environmental Permitting Regulations. This paper will discuss the aims of the NPSE and some less obvious and possibly surprising implications of the policy for industry regulated under an Environmental Permit administered by the Environment Agency. This work is likely to be of interest to consultants, planners and policy makers involved in Integrated Pollution Prevention and Control (IPPC, Directive 96/61/EC and the superseding Directive 2008/1/EC), and the control of environmental impacts of industrial activities.

INTRODUCTION

Regulation of noise by the Environment Agency

The Environment Agency England and Wales substantially first began to regulate the noise from industrial processes under the Integrated Pollution and Prevention Control Directive (IPPC Directive) in 2000. IPPC was introduced by the European Community (EC) Directive 96/61/EC on Integrated Pollution Prevention and Control. In England and Wales the Directive is implemented by the Pollution Prevention and Control (England and Wales) (PPC) Regulations 2000.

IPPC is a regulatory system that employs an integrated approach to control the environmental impact of emissions arising from industrial activities. It involves determining the appropriate controls for industry to protect the environment through a single permitting process. To gain an IPPC permit operators of industrial sites must show that they have systematically developed proposals to apply the Best Available Techniques (BAT) to pollution prevention and control, and that they address other requirements relevant to local factors.

In 2007, the Environmental Permitting Regulations combined The Pollution Prevention and Control (England and Wales) (PPC) Regulations 2000 and Waste Management Licensing (WML) Regulations 1994. The Environmental Permitting Regulations (England and Wales) 2010 were introduced on 6 April 2010, replacing the 2007 Reg-

ulations. This is the current method in England and Wales of implementing IPPC, Directive 96/61/EC and the superseding Directive 2008/1/EC.

IPPC Horizontal Guidance Note for Noise Assessment and Control

The Environment Agency guidance relating to noise is the IPPC Horizontal Guidance Note for Noise Assessment and Control, which consists of H3 Part 1 and Part 2. This guidance is common across the Environment Agency, Scottish Environmental Protection Agency (SEPA) and Northern Ireland Environmental Agency (NIEA). H3 Part 1 was primarily focused on the legislative implications and requirements issues relating to noise. H3 Part 2 was mainly a background into the science of noise. Since the change in England and Wales to the Environmental Permitting regulations much of H1 Part 1 is no longer current, and so it has been withdrawn from the Environment Agency Website. However, at the time of writing, it is still available on the SEPA and NIEA websites.

NOISE POLICY STATEMENT FOR ENGLAND (NPSE)

Overview of the NPSE

The NPSE has a succinct '*Noise Policy Vision: Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development*'. It consists of six brief paragraphs of text, a statement of three aims, five guiding principles for sustainable development, and four pages of explanatory notes. The NPSE separates policy from technical advice, which in principle allows more rapid changes to how noise is managed as knowledge about impacts develops, without the need to go back and review policy.

Scope of the NPSE

Any organization that has a responsibility for managing noise is responsible for implementing the NPSE. It applies to all noise not simply ambient noise, with only workplaces excluded. The long term vision is supported by the following aims: avoid significant adverse impacts on health and quality of life from noise, mitigate and minimize adverse impacts on health and quality of life from noise, and where possible contribute to the improvement of health and quality of life.

NPSE and the PPC Directive

The NPSE goes on to provide useful advice on interpretation of its aims, including the need to integrate consideration of the economic and social benefit of the activity or policy under examination with proper consideration of the adverse environmental effects. This is consistent with Directive 2008/1/EC, which is the latest edition of the IPPC Directive. The NPSE itself does not help clarify the conflict that is often faced between, for example, accepting that a particular development will have some negative impact on the noise climate of some individuals, although that impact is acceptable for the wider benefit to society.

Applicability of NPSE to Scotland, Wales, and Northern Ireland

The NPSE applies directly only to England. However, its principles are consistent with the fundamental principles of Best Available Techniques (BAT), as described in the IPPC, Directive 96/61/EC and the superseding Directive 2008/1/EC, which ap-

plies across all European Union member states. In this way, the principles of the NPSE are applicable to Scotland, Wales and Northern Ireland.

NPSE and the National Policy Statements (NPSs)

The six revised draft Department of Energy & Climate Change (DECC) National Policy Statements (NPSs) for energy infrastructure and accompanying Appraisals of Sustainability (AoS) are applicable in most cases to Wales as well as England. The most recent draft consultation documents contained the same three guiding principles as the NPSE. It is expected that they will remain in the final documents which are expected to be finalized and formally approved imminently at the time of writing this paper. These NPSs would then be used by the Infrastructure Planning Commission when it makes decisions on applications for development consent for nationally significant energy infrastructure. This is significant since this means that through the NPSs, all government departments will have endorsed these guiding principles.

General applicability of the NPSE

There is a requirement for all regulating bodies at the time of rewriting any noise guidance to take into account the NPSE. There is also a requirement that any regulating body making any decisions that may have noise implications takes the NPSE into account. This would apply to County and Local Council Planning Authorities as well as national regulating bodies such as the Environment Agency. Therefore any council planning department should be able to demonstrate their consideration of this where noise is a consideration and that the decision is consistent with the guiding principles of NPSE. There is little evidence to date that the NPSE is being implemented in any substantial way by local authorities with few showing very much knowledge or understanding of the document.

NPSE and assessing noise impacts of developments

Noise has tended to be considered almost in isolation from any benefits of the project to society as a whole. Also traditionally noise has been dealt with in such a way as to assess whether the negative noise impacts of a development project give an unacceptable increase in noise at identified receptors. Techniques involve comparing overall L_{Aeq} with World Health Organization guidelines, or using BS4142 1997 to derive a Noise Rating to assess the likelihood of complaints. It could be argued that methods such as these satisfy the requirements of the first two aims of the NPSE i.e. *avoid significant adverse impacts on health and quality of life from noise*, and *mitigate and minimize adverse impacts on health and quality of life from noise*.

However, as traditionally applied these methods do not satisfy the requirements of the third aim of the NPSE, i.e. *where possible contribute to the improvement of health and quality of life*. It is not immediately apparent that older methods of demonstrating that noise level increases would have no unacceptable impact will not satisfy this requirement. This is because such methods will usually result in the opposite effect, which is continually raising ambient noise levels.

Environment Agency and the NPSE

The Environment Agency considers that the NPSE is wholly consistent with the fundamental principles of Best Available Techniques (BAT) under the PPC directive, PPC regulations and Environmental Permitting Regulations and the other principles

in the Environmental Permitting Regulations such as 'Appropriate Measures', which is essentially equivalent to BAT.

ENVIRONMENT AGENCY GUIDANCE FOR NOISE ASSESSMENT AND CONTROL

Horizontal Guidance and NPSE

The Environment Agency England and Wales together with SEPA and NIEA currently has a project to rewrite the Horizontal guidance H3 for noise. The new guidance is designed to be sufficiently flexible to accommodate the different legislative regimes in the three governed regions of the UK. However, careful consideration also needs to be given in the update to the implications of the requirements of Noise Policy Statement for England (NPSE).

The need for change

In the UK, there is often a fairly haphazard use of various British, European and International Standards, which leads to confusion and significant inconsistencies. There is repeated misapplication of the various standards, both through ignorance and deliberate acts to best achieve the particular requirements of a client or to demonstrate a point of view. For example, parts of guidance may be used by selectively highlighting features favorable to clients and ignoring footnotes and qualifying information. The Environment Agency considers that there is a clear need to move to a more consistent and objective way of assessing noise effects. The Environment Agency is currently producing guidance which seeks to consistently apply the various standards to ensure that objective noise measurements and impact assessments are carried out.

Structure of the revised guidance

It is intended that the document be as future-proof as possible, whilst being non-legislation specific as far as practicable. To this end the revised guidance will be primarily a top level document that will outline general issues concerning noise, policy and legislation. Providing the technical detail for the H3 document will be a series of detailed noise guidance notes, referred to as the N-series. Specific topics covered include obtaining valid representative background ambient noise levels; competence of persons carrying out noise monitoring; noise assessments and noise management plans; assessment of tonality; and low frequency noise assessments.

Method Implementation Documents (MIDs)

Historically the Environment agency has consistently received reports from operators and consultants where significant errors and bad practices have been carried out in the use of British, European and International standards. To aid removal of this it is proposed that where this is with commonly used standards that Method Implementation Documents (MIDs) are created that should significantly aid the interpretation and use of commonly used standards. This is a technique and format the Environment Agency has used successfully for many years for standard methods for the monitoring of pollutants to the environment, which include air and receiving waters. A visit to the Environment Agency website www.mcerts.net will give a good introduction to the workings of this method of guidance.

Practical application of MIDs

Not all standards will require or have a Method Implementation Document, however where they are produced they will be regularly kept up to date as issues occur and apparent confusion seems to exist. They will also be used to eradicate instances of bad practice. Where a method implementation document exists it will be expected in all cases that it is used in conjunction with the Standard, and that where parts of a standard are no longer best practice, the MID may well specify an alternative, and in this case the technique in the MID must be used. In this way the standard as being applied will remain as up to date and current as possible.

Improvement of health and quality of life

The issue highlighted earlier in this paper regarding custom and practice being to demonstrate that the increase in noise levels is acceptable and this leading to gradual increases in noise levels or creeping background. As eluded to earlier this is not consistent with the third aim of the NPSE, i.e. where possible contribute to the improvement of health and quality of life. It is essential that new H3 guidance and associated documents satisfies this aim.

Addressing creeping background in practice

To satisfy the third aim it may mean that an industrial installation would need to be able to demonstrate that an expansion project had actively considered methods and designs that reduced the noise effects of the existing installation, for example by the location of a new building and the possibility of using it as a noise barrier to a sensitive receptor, or making a building on the new project slightly larger to house some of the existing equipment to reduce impact on sensitive receptors. Where many noise sources exist in close proximity, such as industrial sites it is important that when assessing the impact of a particular process, attempts are made to reduce noise levels such that future noise reductions from other sources will give an audibly noticeable and measureable reduction.

Assessment of initial design targets

It is clear that not on all occasions is it practical for designs to produce an ever reducing soundscape, However it is currently extremely rare for this to be considered as an initial design target. The new H3 will set this initial objective where the initial design target for contribution at identified receptors will be 10dB below existing background. If this can be achieved with an initial design then there need be little further demonstration that the process is BAT and the design would be classed as broadly acceptable. If the initial proposed design is significantly higher e.g. 5 to 10 dB+ above background it is highly likely this will be deemed unacceptable.

Demonstrating consistency with the principles of BAT and NPSE

There will then be the region between -10dB and +5 dB contribution or BS4142 Noise Rating where the operator and/or noise consultant will be required to do a rigorous justification that the option being proposed is BAT. The justification will need to detail options considered and there will need to be a sound justification why techniques which are available to reduce noise still further are not being adopted, on grounds of practicality and/or not economically viable. As noise contributions rise then the BAT justification will need to become more detailed and rigorous, and increasing cost of

noise mitigation would be expected to rise proportionate to the increased effect on the receptor. This is consistent with both the principles of BAT and the third aim of the NPSE.

Endorsement and acceptance of the guidance

One objective in the rewrite of the Environment Agency noise guidance is to obtain the endorsement of the professional bodies of noise consultants in England and Wales. One method to achieve this could be through a series of consultation with the appropriate members groups, such as the Institute of Acoustics. It is hoped that with the appropriate members bodies in agreement with the guidance and backing its implementation, to achieve consistency across its members and raise the standards across the acoustics industry in general.

The ultimate aim of the new Environment Agency noise guidance is to provide clear concise guidance that is easy to use. The aim is also to remain consistent with the same guidance across processes regulated by the Environment Agency, SEPA and NIEA. It would then be possible for acousticians to use the documents as the main reference documents for all noise monitoring and impact assessments.

DISCUSSION

Best practice for noise monitoring and impact assessment

It is envisaged that there will be a complete rebuild of the Environment Agency Noise Webpage. It is envisaged that if the appropriate professional bodies endorse the contents of the new guidance and associated documents that this could become the first place to visit to check current best practice for environmental noise monitoring and impact assessment.

Sources outside the jurisdiction of the Environmental Agency

There are many noise sources that the Environment Agency do not regulate, such as wind turbines, road traffic, railway, and airport noise. To ensure that the website is used as first port of call it may be necessary to provide links to current best practice guidance for these topics on other organizations websites, such as IOA or Defra.

Proformas for common procedures

On the Environment Agency noise webpage would be H3 noise guidance, up to date N series technical guidance notes and the current version of the required method implementation documents. There will be a link from the Environment Agency monitoring webpage to facilitate easy referral to the noise webpage rather than searching through the many facets of the Environment Agency website. It is also envisaged that there may be proformas for common procedures, such as producing a noise management plan.

Extended application of the revised guidance

Since the documents will have implemented the NPSE in full it should be applicable to use the documents for noise measurement and assessments for other uses other than satisfying the Environment Agency, SEPA and NIEA, and should be selectively useful for supplying information to local authorities for planning etc. This may also ultimately lead to the guidance being used as a major reference by local authorities,

and may lead to some consistency in information and requirements for noise across the UK.

CONCLUSIONS

The Noise Policy Statement for England has created a need to review existing guidance and methods of noise assessment. This is particularly case with respect to the third aim, i.e. where possible contribute to the improvement of health and quality of life. This third aim is entirely consistent with the fundamental concept of BAT.

The Environment Agency is currently rewriting its noise guidance taking full consideration of the guiding principles of the NPSE. It is proposed that noise impact assessments would fall into three basic categories. The categories being:

i. broadly acceptable,

ii. unacceptable, and

iii. a category in the middle.

In the latter case, a rigorous demonstration would be required that the techniques employed for noise prevention and mitigation are appropriate.

There is a significant need to improve consistency in environmental monitoring and assessment of noise impacts, and to eradicate bad practices for whatever reasons they occur. At this time, there is a real opportunity to remove much confusion and prolific bad practice with the cooperation of a few key organizations, and come to a common objective understanding and route forward. It is hoped that the Environment Agency's reissue of its noise guidance can move the UK forward in a clear unified direction consistent with the NPSE, and lead to a gradual improvement in the noise environment.

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Protection against aircraft noise. Novella of the German law of October 31, 2007

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PRESENT STATE

The „law of protection against aircraft noise" of 3/30/1971 in Germany contained limit values of 75, 67 and 62 dBA as protective zones, calculated to $L_{eq4,0\text{-}24h}$. These limit values served primarily for the settlement of zone planning and were not founded healthwise. The amendment of this law of 10/31/2007 occurred under inclusion of health points of view. The maximum values of this new law version were determined according to $L_{eq3,6\text{-}22h}$ for the day strain and $L_{eq3,22\text{-}6h}$ for the night strain. In addition to the judgment with the help of the night equivalent continuous sound pressure level the maximum level recorders L_{max} has been considered as another important criterion.

Table 1: Emission Values Law of 10/31/2007

	Existing Airports	**New Airports**
Day – Protection Area 1	65 dBA	60 dBA
Day – Protection Area 2	60 dBA	55 dBA
Night - Protection Area	55 dBA 6 x 57 dBA	53 dBA 6 x 57 dBA
Starting 2011		**50 dBA** **6 x 53 dBA**

Beside the law of 1971 existed the air traffic-licensing order (LuftVZO) which apart from the attention of the law demanded a physical - technical certificate about the aircraft noise strain and also medical certificate about the possible health effects by independent consultants. These consultants according to the LuftVZO were obliged therefore legally to provide an objective scientific certificate about the state of the noise effect research which led of course over and over again to personalized discussions.

Therefore the scientists Prof. Dr. Griefahn (Dortmund), Prof. Dr. Jansen (Düsseldorf), Prof. Dr. Scheuch (Dresden) and Prof. Dr. Spreng (Erlangen), who represented different main focuses of the noise impact research (NIR), compiled in 2002 a comprising representation of the essential results of the NIR, the so called "Synopsis" (Griefahn et al. 2002) which were confirmed in the essentials after an examination in 2007 (Scheuch et al. 2007). The "Synopsis" was described on occasion of the ICBEN Congress at Rotterdam (Jansen et al. 2003).

The different protective aims health, nuisance, sleep disorders, communication disorders and recreational disorders were considered individually. The corresponding noise emission limits were implemented in gradated effect descriptions as „critical tolerance values (KTW)", „preventive approximate values (PRW)" and "quantitative threshold values (SW)" and recommended. As a judgment measure the continuous sound pressure level L_{eq3} and the maximum level recorder $_{Lmax}$ were pulled up. In the