Summary of responses to our 2013 public consultation "H1 Environmental Risk Assessment"

July 2015

We are the Environment Agency. We protect and improve the environment and make it **a better place** for people and wildlife.

We operate at the place where environmental change has its greatest impact on people's lives. We reduce the risks to people and properties from flooding; make sure there is enough water for people and wildlife; protect and improve air, land and water quality and apply the environmental standards within which industry can operate.

Acting to reduce climate change and helping people and wildlife adapt to its consequences are at the heart of all that we do.

We cannot do this alone. We work closely with a wide range of partners including government, business, local authorities, other agencies, civil society groups and the communities we serve.

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Foreword

This document summarises the Environment Agency's response to issues raised through our public consultation entitled "H1 Environmental Risk Assessment". The consultation ran on the Environment Agency's consultation webpage from 31st October to 24th December 2013.

The Environment Agency uses the H1 system in support of its regulatory activities. In particular decisions made in consideration of applications for bespoke permits made under the Environmental Permitting (England and Wales) (Amendment) Regulations (EPR) 2013. H1 is structured with an Overview document supported by a series of technical annexes, each of which provides guidance on risk assessments which relate to particular activities described within the regulations. The Overview describes our approach to risk assessment and the technical annexes present guidance on how stage two of the four stage process should be carried out.

The purpose of this consultation was to seek the public view on changes we propose to seven of the current eleven annexes. If implemented, our proposals will reduce the number of annexes from eleven down to nine. And modifications to the H1 software tool will enable the user to carry out the new screening process for the assessment of discharges to surface waters in support of their permit application.

Within the consultation document we included a series of questions that reflected the changes we are proposing to make. This produced 21 responses and over 300 queries. Responses came from fellow regulators, from regulated industry, from water companies, from trade associations, from health professionals and from environmental consultants.

Once our response to this consultation is published we will follow that up with publication of the annexes and the H1 software tool. The documents will appear on the Gov.UK website and our H1 software tool will be available via our National Customer Contact Centre.

Since compiling this document the Government has introduced its Smarter Guidance and Data project which seeks to simplify environmental guidance and data reporting requirements. As a consequence of this project we have decided to incorporate the contents of our new annex A into a modified risk assessment overview document that will replace the current H1. This does not affect the responses we have given in relation to our original proposal included within the consultation.

Executive summary

H1 is the Environment Agency's principal horizontal guidance note that cuts across all functions we regulate under the Environmental Permitting Regulations 2010, SI 675 as amended by the Environmental Permitting (England and Wales) (Amendment) Regulations (EPR) 2013, SI 390. H1 advises operators applying for a bespoke permit on the appropriate measures to use to manage health and environmental risks from the operation of their activity.

Launched in modular form in April 2010, H1 currently includes an Overview document supported by eleven technical annexes. The Overview document serves to guide readers only to the annexes that relate to their activities, thereby streamlining risk assessments undertaken in support of the permitting process. The main structural change resulting from this consultation was a proposal to reduce the number of technical annexes from eleven down to nine.

Changes to the various annex include:

- the introduction of a screening and modelling approach for the permitting of discharges containing hazardous pollutants across all EPR activities,
- the brigading of amenity and accident risks across all EPR activities into one annex,
- updating the ammonia screening tool for Intensive Farming,
- development of an Odour screening tool for point sources,
- changes to our cost benefit analysis to assist operators who wish to support a claim for derogation from the BAT Conclusions associated emission levels (AELs) within the Industrial Emissions Directive[1].

The H1 software tool has been modified to include the new screening for hazardous pollutants. Outputs from the tool have also been linked to OPRA spreadsheets and input and output data can now be viewed in a spreadsheet and printed.

We considered that our proposal to introduce a new screening methodology for the assessment of discharges containing hazardous pollutants could result in additional costs to users of H1 annex D. To reflect government policy and our responsibilities under the 'Accountability for Regulatory Impact', we sought responses from anyone who felt they would incur a significant increasing or decreasing of the resource they would have to commit in carrying out these changes.

The consultation included eight questions, with some split into more than one part.

Whilst the thrust of the consultation was to seek responses in respect of the technical issues arising from these proposals, we were keen to learn how readers felt the consultation had operated in its electronic form and how it had been managed. This document is a summary of the consultation. It includes the questions we have posed, a summary of the comments we received and our responses to the issues raised.

[1] 2010/75/EU

Acknowledgements

Environment Agency would like to thank all those who participated in this H1 public consultation. The name of their organisations or whom they represent is included in the Appendix.

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Summary of responses to our "H1 Environmental Risk Assessment 2013"

Background
Pollutant concentrations in the environment, released from activities listed within the Environmental Permitting Regulations 2010 (EPR) SI 675, as amended by the Environmental Permitting (England and Wales) (Amendment) Regulations (EPR) 2013 SI 390, are assessed against a series of environmental standards. By introducing a series of criteria, which screen out those pollutant concentrations which are a small portion of the relevant standard, the Environment Agency is able to focus its attention on the more polluting releases which carry the greater risk. The Environment Agency uses its H1 system to carry out that screening process.

The H1 system is structured with an Overview document supported by a series of technical annexes. The Overview document includes a four-stage risk assessment which requires the applicant to:

- identify risks from their activity,
- assess the risks and check that they are acceptable,
- justify appropriate measures to control the risks, if necessary, and then
- submit their assessment.

To enable the applicant to identify the risks from their activity a table of EPR activities and how they relate to the H1 annexes is included within Table one of the Overview document. The technical annexes enable the applicant to concentrate on the risks associated with their activity. And it is to seven of these annexes we proposed to make changes.

Changes to the various annex include:

- the introduction of a screening and modelling approach for hazardous pollutants across all EPR activities, annex D.
- the brigading of amenity and accident risks across all EPR activities into one annex, annex A.
- updating the ammonia screening tool for Intensive Farming, annex B.
- development of an Odour screening tool for point sources, annex F.
- changes to our cost benefit analysis to assist operators who wish to support a claim for derogation from the BAT Conclusions achievable emission limits (AELs) within the Industrial Emissions Directive[2], annex K.
- removal from circulation of annex C and annex E.

A series of eight questions were posed regarding these changes and the responses collated. The content of each question and our response is given in the following sections of this report.

[2] 2010/75/EU

1. The Consultation Questions

Questions were assigned to the annexes we are proposing to change and these are listed below:

Q1. Combining annex A and annex C into one document.

Question 1a: Does the combined annex A and annex C work for you in terms of assessing the amenity and accident risks from your activity? If not, please tell us where improvements are needed.

Q2. Annex B – Intensive Farming.

Question 2a: Is the approach to ammonia assessment clearly explained? If not please explain where improvements should be made and why?

Question 2b: Is the new screening approach for small on-farm biomass boilers clearly explained? If not please explain where improvements should be made and why?

Q3. The Environment Agency's planned approach to implementing the statutory requirements of the Water Framework Directive (annex D package of documents).

Question 3a: Please tell us if in undertaking this new screening approach for hazardous pollutants in annex D1 you believe you will incur any significantly increased or decreased costs.

Question 3b: Do you have any comments on the additional paragraph in annex D1 in the section on estuarine and coastal waters entitled "Screening Limitations"?

Question 3c: Do you have any comments on the method for calculating the PEC in annex D1?

Question 3d: Do you have comments on the use of the mixing zones approach for calculation of the process contribution for discharges from installations and waste sites to estuarine and coastal waters (salt water)?

Question 3e: Does the worked example of the new screening calculations and modelling methodology (in annex D1, appendix A) explain the process clearly? If not how could it be improved?

Q4. Annex F - Odour dispersion factors.

Question 4a: Do you think the screening criterion in annex F is appropriate for odour assessments or could you justify an alternative?

Question 4b: Would you like to see Odour Dispersion Factors provided for other aspects of EPR regulation in addition to point sources? If so, please explain why.

Q5. The revised annex K (2013).

Question 5a: Does the revised document still work for what we previously would have called 'BAT assessments'? If not, please tell us where improvements are needed.

Question 5b: Do you support the view that the life span of some major plant items may be greater than those in Table five? If so, please provide any evidence of plant operating for longer periods than given in this table?

Q6. Changes to the H1 software tool.

Question 6a: Do you support these changes? Are there other areas where you think improvements should be made?

Question 6b: Looking at the H1 software tool ‘Page help’ and ‘Box help’ are there any areas where you think the support and guidance could be improved?

Q7. The scope of the Environmental Permitting Regulations (EPR) in relation to the making of bespoke permit applications to the Environment Agency.

Question 7: In addition to these changes are there any other areas of EPR where you feel H1 should be modified to either simplify the making of bespoke applications or reduce the burden on applicants when compiling their bespoke application?

Q8: Please provide any other comments.

Responses to each question are presented in the following section to this report.

2. Responses to questions

This section summarises the responses to the questions in the consultation.

2.1 Combining Annex A and Annex C into one document

Question 1a: Does the combined annex A and annex C work for you in terms of assessing the amenity and accident risks from your activity? If not, please tell us where improvements are needed.

Summary

While the majority of respondents supported the merging of annex A with annex C and the simplifications it offered, some respondents were not happy. Reference to sewage treatment works within the body of the text left some operators of water companies feeling we were trying to apply the need for the assessment of accident risks to sites with activities defined under the Urban Waste Water Treatment Directive. However one multi-installation site felt the level of detail presented within the merged annex A was unmanageable for a large industrial site with a company-wide management system and asked how this could be implemented with multiple levels of governance.

1.1 Health professionals found the new annex A straightforward and that it detailed the key elements to be considered by an applicant. They recommended we satisfy ourselves that existing accident risks are appropriate and that further hazards should be added.

Our response: We welcome this support and will add additional hazards to the examples at the back of the new annex A.

1.2 A consultant thought the combining of annex A and C served to avoid duplication of information but the new annex A lacked examples of hazards that previously were associated in annex C with regulated surface water and groundwater discharges.

Our response: We acknowledge this observation and will make amendments to the hazards displayed at the back of the new annex A.

1.3 A One water company welcomed the merger of annex A and annex C. They recognised how the merger simplified the process of aligning accident risk with potential receptor to ensure the appropriate control or mitigation measure was available. Since the thought process for the two annex is similar, merging them makes the process simpler to follow.

Our response: It is clear that some water company operators welcome the simplification in the assessment of accident risk this merger provides to regulated sites.

1.4 Another water company thought the merger made sense, particularly where they have installations or waste operations on sewage treatment works where there are direct pathways to controlled water-bodies.

Our response: A qualified vote in favour of the proposed merger of annex A and C.

1.5 Two remaining water companies felt the merger had transposed the purpose of annex C from activities of sewage discharges and discharges to groundwater into a combined annex where reference was also made to sewage treatment works.

Our response: We acknowledge the concerns this has raised and we will clarify the position in the new annex A when it is published.

1.6 One multiple facility installation, where the assessment of accident risks is governed by a company-wide management system, found that when following table five in annex A and table two in annex C the potential number of accident scenarios too large and difficult to govern. They asked how this would be better implemented on a larger company level, with multiple levels of governance.

Our response: We would expect each permitted operator to hold and to implement an environment management system which is proportionate to the on-site activities and the risk they pose to the environment. This could be in the form of a simple check list to a fully certified ISO 14001 system. The revised annex A is designed to cover all EPR activities, but the variety of regulated activities means we can guide operators without specifically setting out how they should manage their own systems.

1.7 It was felt by a water company that amenity and accident risks were not distinguished from each other in the tables of examples at the back of annex A.

Our response: Amenities are issues such as odour, noise, fugitive emissions and visible plumes. Within annex A tables one to four give examples for each of these risks. Accident risks are separate in Table five.

1.8 It was not clear to one Water company how the accidents represented in annex A are those that account for the changing climate.

Our response: Within the list above Table five we have included two examples to represent risks associated with the changing climate. These are flooding of all types and extreme weather events such as drought, heat waves or strong winds.

1.9 A water company noted that flooding and extreme weather events has been added to the list of accident risks on page 16 of annex A and accepted that a degree of resilience was important. However they considered that combining resilience with some of the original accidents on the list was unbalanced and represented a combining of unpredictable and predictable factors. These should be considered separately to enable a measured and appropriate response in each case.

Our response: The additional accident risks were considered necessary following recent flooding events which had the potential to seriously disrupt essential operations such as water pumping stations. Within our changing climate such occurrences can now be considered as a predictable event.

1.10 An industrialist felt on large scale installations that only hazards with the potential to create off-site risks should be considered.

Our response: The majority of specific permitting standards and other related requirements for environmental and human health protection come from Directives. The Environmental Permitting Regulations ensure those Directive and national policy requirements that can be delivered through a permitting and compliance system are delivered by the Regime. Within the directive on ambient air quality[3] and cleaner air for Europe, ambient air means outdoor air in the troposphere, excluding workplaces as

[3] 2008/50/EC

defined by Directive 89/654/EEC (3) where provisions concerning health and safety at work apply and to which members of the public do not have regular access. Hence it is appropriate that operators assess the risks associated with their activity which have the potential to affect off-site receptors.

1.11 An opinion expressed by an industrialist was that it is an onerous request to expect operators to list all potential sources of fugitive emissions and to set control measures for each.

Our response: We would expect all operator's of installations to have an understanding of their sources of fugitive emissions and to manage them such that pollution that may have an effect off-site or to groundwater is minimised.

1.12 An industrialist suggested that groundwater should be listed as a receptor in Table 4 of annex A and currently it is not.

Our response: We will amend Table four to include groundwater as a receptor.

1.13 Under the section of annex A "What are the chances of causing harm?" we refer to the need for a realistic assessment of the effectiveness of the operator's risk management measures. We add that the realism of those measures should reflect our professional experience of how effective measures are. This prompted an industrialist to suggest that the experience of their staff in compiling risk assessments for their activities should be given similar weight to that of the regulator and that risk assessments should be realistic and not overly conservative.

Our response: This document is written for all activities which are permitted under EPR. The scale of the risk assessments the operator should consider in compiling their application should reflect the complexity of those activities. We would expect operators of major industrial sites to be fully conversant with these requirements, but operators of other sites may not be so and we aim to provide guidance to all operator's of EPR activities.

2.2 Annex B – Intensive Farming

Question 2a: Is the approach to ammonia assessment clearly explained? If not please explain where improvements should be made and why?

Summary

Clarification on issues relating to the new text in annex B was sought by trade associations and conservationists and in the majority of cases we have amended the text.

2.1 A trade association and union representatives suggested that since there is often poor evidence of actual damage from ammonia emissions from the Intensive Agricultural sector, and the concept of critical levels and critical loads is more an indication of increased risk rather than an indication that damage will occur, they felt it was time to reassess the values used by us and published in the guidance. They referred specifically to an allowable process contribution (PC) of only 20 per cent of the critical level for SAC sites, 50 per cent for SSSI sites and 100 per cent for ancient woodland sites, describing these thresholds are arbitrary and too restrictive.

Our response: We apply different thresholds to the nature conservation sites, above which detailed modelling will be required as part of the application to assess the potential impacts of ammonia emissions. We use a hierarchical approach based on the level of designation. The screening thresholds are under review. Annex B will be updated if the thresholds change as result of this review.

2.2 The same trade association and union representatives suggested a review of current modelling guidance was required as they believed it was not working as it should and served to misinform permitting officers. Specifically, the validity of the two-stage approach which they suggested adds complexity and hence additional costs to operators. They suggested the application of spatially variable deposition velocities was not required for small to medium installations and that N deposition values, including plume depletion effects, could be calculated more simply by current models.

Our response: We consider the approach outlined in the guidance to be technically robust. We recommend the two-stage approach to allow the concentration dependency of the deposition velocity and the ammonia depletion of the plume to be taken into account. Only where stage one predictions exceed the relevant assessment thresholds do we recommend applying variable deposition velocities. The approach is based on the current understanding of ammonia deposition and best available information. We will review and revise the method in light of new information and the development of modelling techniques as they become available.

2.3 Union representatives asked that the array of acronyms used with ‘designated sites’ be explained.

Our response: Table seven within annex B will be amended, specifically to include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) or Ramsar sites, Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Local Nature Reserves (LNRs), Local Wildlife Sites (LWS) and ancient woodland (AW)

2.4 A trade association stated that it is difficult evaluate the revised approach to ammonia assessment as the screening thresholds are still under review.

Our response: The current thresholds were set in 2007 and reflected best available evidence at that time. We are reviewing these thresholds in the light of recent evidence and we will discuss the findings with industry when it is complete. We will also update annex B if necessary within a revised version we hope to publish soon.

2.5 In the first paragraphs under the sections “What kind of assessment is required?” and “Assessment of emissions to air in relation to critical levels and critical loads” a trade association suggested it would be useful to mention the acidification effects of nitrogen deposition as well as the eutrophication effects, as nitrogen deposition is to be assessed against critical loads for both acid and nutrient nitrogen deposition.

Our response: We have amended the text in annex B to clarify this position.

2.6 A trade association observed that for consistency with the 2010 briefing note “Ammonia emissions from Intensive Pig and Poultry Farms – Clarification of the Environment Agency assessment process” the initial screening threshold using AST for the impacts of a single installation (Y per cent) should be 50 per cent rather than 100 per cent.

Our response: Due to increased confidence with our AST results we now screen up to Z per cent and only require modelling where the screening indicates the predicted PC (alone or in-combination) is greater than Z per cent. We will screen emissions at the pre-application stage. Any potential in-combination effects from existing nearby farms will be assessed as part of the screening. Only where the application farms' PC is predicted to exceed Y per cent and the total in-combination contribution exceeds Z per cent will detailed modelling be required.

2.7 Looking at screening thresholds a trade association suggested that “emissions” of ammonia should be replaced by “concentrations” of ammonia.

Our response: We have amended the text in annex B to make this change.

2.8 Under the section “Detailed assessment” a trade association thought the first bullet point should refer to Y per cent rather than Z per cent?

Our response: See our response to 2.6.

2.9 Under the section “Proposing ammonia emission reduction techniques” a trade association suggested that it is not clear what the “allowable thresholds” are for the results from detailed modelling. They asked are they Y per cent for individual installations and Z per cent for individual installations (as specified in our 2010 briefing note)?

Our response: We have amended annex B to explain that Z per cent is the allowable threshold.

2.10 A trade association asked why under the section “Proposing ammonia reduction techniques” and the “allowable thresholds” resulting from detailed modelling why is there no assessment of the sum of the process contribution (PC) plus background (PEC) against the critical level/load?

Our response: Your assessment and application should include ammonia reduction techniques to reduce the contribution to within the allowable threshold where:

- your modelling indicates the predicted process contribution (in combination with other nearby intensive livestock farms) plus background levels is greater than the relevant critical level or load;
- your modelling indicates the predicted process contribution (in combination with other nearby intensive livestock farms) is more than 20 per cent of the Critical Level/Load at a SAC, SPA or Ramsar, more than 50 per cent at a SSSI or more than 100 per cent at a NNR, LNR, ancient woodland or local wildlife site.

2.11 A trade association suggested that annex B Figure one is not consistent with the associated text. They asked is the pre-application discussion a staged approach, with further information requested if nature conservation sites are found within the distance screening criteria.

Our response: The pre-app screening is a staged approached. We have deleted the distance screening from the flowchart to simplify.

2.12 Reviewing Appendix one in annex B a trade association asked why is rainfall data required if wet deposition is not considered in the assessment?

Our response: We have amended the text by removing the reference to rainfall.

2.13 On annex B page 25 a trade association suggested that in the section 'What kind of assessment is required?' paragraph one "...main sources of ammonia (due to intensive farming?) in the atmosphere...?

Our response: We propose to take no action as we believe the message is clear.

2.14 Following to the next section on annex B page 25 a trade association suggested that in the section 'What kind of assessment is required?' paragraph two - "..the annual amount of ammonia.." should say "..the annual amount of nitrogen.."?

Our response: We have amended the text to clarify this point.

2.15 Going further on annex B page 25 a trade association suggested that in the section 'What kind of assessment is required?' paragraph two - "..(in kilogrammes of nitrogen) after nitrogen we should insert "for eutrophication or kilograms of H+ equivalent for acidification"?

Our response: We have amended the text to show the second is the critical load, which specifies the annual amount of ammonia that can be deposited (in kilogrammes of nitrogen for eutrophication and kilo equivalents per hectare and year for acidification).

2.16 On annex B page 26 a trade association suggested that in the section 'Assessment of emissions to air in relation to critical levels and loads' - after "nutrient nitrogen.." insert "and acidification"?

Our response: Agreed. We have amended the sentence to say 'The assessment process (summarised in Figure one) will help you identify the location of nearby nature conservation sites, assess the sensitivity of these sites to airborne ammonia concentration, nutrient nitrogen deposition and acidification.'

2.17 A trade association suggested that in annex B page 27 first bullet after "the housing type" insert "and corresponding animal places"?

Our response: Agreed. We have amended the sentence to say ‘The most appropriate ammonia emission factors for the housing type and corresponding animal numbers’.

2.18 On annex B page 27 in the section Screening Overview a trade association suggested that in the first paragraph we replace "correct" with "collected"?

Our response: We feel no change is necessary.

2.19 In annex B appendix one second bullet a fellow regulator suggested that after "(kg(N)/ha/yr)" we should add "and keq/ha/yr)"?

Our response: Agreed, text amended.

2.20 A fellow regulator asked in annex B appendix one fourth bullet - what does "technologies and techniques" relate to, site operation?

Our response: This refers to the site operation, type of housing, type of livestock, ventilation and abatement if applicable.

2.21 In annex B appendix one fifth bullet a fellow regulator asked why the requirement to model short term peaks when ammonia assessments are based on annual average emission factors.

Our response: We have considered this comment and deleted this bullet point from the revised version of annex B.

2.22 In annex B appendix one last bullet a fellow regulator suggested that after "measured data for the site" we add "at the emission point"?

Our response: We feel there is no need to make this change as with intensive farming it is more likely we will trial data to support the emission factor rather than require measuring at an emission point.

2.23 In annex B appendix one first paragraph after bullets a fellow regulator questioned whether guidance referred to is available via the Environment Agency's website?

Our response: This stand alone guidance has been incorporated into H1 annex B Appendix one.

2.24 A fellow regulator suggested that in annex B appendix one page 30 last paragraph we replace "..an adequate approximation.." with "acceptable".

Our response: Agreed. We have amended this text.

2.25 Going further a fellow regulator suggested that in annex B appendix one stage two page 33 last paragraph we supplement "ADMS 4.2" with "or later version".

Our response: Agreed. We have amended this text.

2.26 In annex B page 26 paragraph four a fellow regulator suggested we insert 'pages' after 'Site Relevant Critical Load tool'.

Our response: This is a style issue and we have not changed the text.

2.27 In annex B page 33 Appendix one stage one, step ii a fellow regulator suggested a formatting change of 'Vd' to '$V^{d'}$ to be consistent with the explanation below the formulae.

Our response: Agreed, we have changed the font.

2.28 In annex B page 33 Appendix one stage one, step iv a fellow regulator asked are the thresholds referred to here the same as those in Table seven? If yes then refer to Table seven here?

Our response: If the predictions from Stage one indicates that the thresholds used in the assessment (Table seven) will be exceeded, then go to Stage two.

2.29 In annex B page 34 Table A1 a fellow regulator asked are the deposition velocities in columns three to six to be used for any vegetation?

Our response: The deposition velocities for concentrations above 10ug/m^3 can be used for both short and tall vegetation.

2.30 In annex B page 34 Table A1 a fellow regulator suggested it might be helpful to indicate that for these deposition velocities there is no distinction made for vegetation height as for 0.02-0.03m/s.

Our response: We have not received any feedback from modellers related to misinterpreting this section. Hence we conclude that no changes are necessary.

2.31 In annex B page 25 a fellow regulator asked would the assessment of nitrogen dioxide also include its contribution to acid deposition?

Our response: We have modified the text to include acidification.

2.32 A fellow regulator sought confirmation that in annex B page 25 it is nitrogen dioxide and not nitrogen oxide that is being assessed?

Our response: Yes we can confirm that nitrogen dioxide is being assessed. For deposition, we are interested in Nitrogen Dioxide and not Nitrogen Oxide.

2.33 Conservationists suggested that in annex B acid deposition & potential acidification effects are missing from "Assessment of emissions to air in relation to critical levels & loads".

Our response: We have amended the text to include reference to effects of acidification.

2.34 In annex B table one page five conservationists suggested this should refer to non-fugitive emissions to air.

Our response: Agreed, we have inserted Point Source Emissions into the table.

2.35 In annex B conservationists suggested it would be helpful to refer operators to Environment Agency/Natural England joint guidance on the planning-permitting interface (additional guidance for Intensive Farming).

Our response: This guidance is not approved or published so we cannot refer applicants to it.

2.36 In annex B page five 'How serious could the harm be?' conservationists suggested we add sensitive lichens & ammonia.

Our response: Agreed, we have amended the text.

2.37 In annex B page six paragraph three - "Only look for receptors near your site.." conservationists asked is there a table of distances you could refer to? Would an operator consider 5km for SSSI's & 10km for N2K sites as 'near'? Table seven, page 27 perhaps?

Our response: We believe no action is required as the introduction and distances are covered in the ammonia section. This introduction covers distances for noise and odour as well as ammonia.

2.38 In annex B page six paragraph six conservationists suggested that we need to show the locations of sensitive nature conservation sites too.

Our response: Agreed, we have amended the text.

2.39 In annex B page seven table two conservationists suggested that SAC's, SPA's, Ramsar are usually referred to as "International or European designated sites".

Our response: Agreed, we have amended the text.

2.40 In annex B page seven table two conservationists suggested we insert a link to information on SAC's, SPA's, Ramsar via:
http://www.natureonthemap.naturalengland.org.uk/

Our response: Agreed, we have inserted the link.

2.41 In annex B page 25 paragraph six conservationists asked what does "not all the sites listed are relevant to the Intensive Farming sector" mean?

Our response: The fact sheet covers all EPR sectors and therefore includes receptors such as listed buildings, built conservation areas and coastal areas that are not relevant to the Intensive Farming Sector.

2.42 In annex B page 25 paragraph seven, first sentence conservationists suggested we add slurry storage as well as manure.

Our response: Agreed, we have amended the text.

2.43 In annex B page 25 paragraph seven, second sentence conservationists advised that lower plants are 'often' the most sensitive species such as the orange Xanthoria which likes extra nitrogen.

Our response: Agreed, we have amended the text.

2.44 In annex B page 25 paragraph seven, final sentence conservationists suggested we replace 'variety' with 'diversity' and link to 'your excellent ammonia leaflet'?

Our response: Agreed, we have amended the text. We will consider inserting the link when the amended annex B is published Gov.UK.

2.45 In annex B page 25 final paragraph conservationists suggested that the UNECE definition of critical level is "above which direct adverse effects on receptors may occur according to present knowledge".

Our response: Agreed, we have amended the text.

2.46 In annex B page 26 paragraph two conservationists advised that acidification is not just about "acid rain". In terms of emissions from Intensive Livestock units AQMAU advise the main contribution to acidification is through dry deposition.

Our response: Agreed, we have amended the text.

2.47 In annex B page 26 paragraph two at the end of the sentence conservationists suggested that we say "map environmental risk (exceedance of critical loads & levels)".

Our response: Agreed, we have amended the text.

Question 2b: Is the new screening approach for small on-farm biomass boilers clearly explained? If not please explain where improvements should be made and why?

Summary

We have provided clarity on the screening criteria, fuel types and thresholds proposed in this amendment to annex B.

2.48 Within the biomass boiler screening system union representatives asked why clean waste wood was excluded from applicable fuels. They added the low risk status is evident as the Environment Agency includes untreated waste wood burning in their U4 Waste Exemption.

Our response: We have updated the screening criteria to include clean non virgin timber, straw and Miscanthus. We have added additional text to highlight the different technical requirements and permit charges for boilers burning clean non virgin timber. Note that 'virgin wood' does include wood chip derived from virgin wood processing e.g. wood off-cuts, shavings or sawdust from sawmills or timber product manufactured dealing in virgin timber. Virgin wood used as fuel in an appliance is not subject to waste regulatory controls. Non virgin waste wood remains a waste until burned as a fuel. Its burning will normally be regulated by an environmental permit or through the U4 exemption. Burning of waste wood may be subject to the requirements of the Industrial Emissions Directive (IED) Chapter IV (equivalent to Waste Incineration Directive (WID)).

Excluded from IED Chapter IV requirements are boilers that only burn wood waste which does not contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coatings. For example: a typical on farm biomass boiler burning wood chip containing clean non virgin waste wood (not subject to IED Chapter IV). The applicant can use the criteria in annex B to screen emissions. The activity will fall under Section 5.1B (a) (v) of the EP Regulations: 'The incineration in a small waste incineration plant with an aggregate capacity of 50 kilogram's or more per hour of the following waste – (v) wood waste with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coatings.'

2.49 Uncertainty at the origin of the 0.5MWth, 1MWth and 2MWth thresholds was expressed by union representatives.

Our response: The biomass boiler air emission screening criteria was developed to simplify the assessment of air emissions for applicants. The position statement sets out to define the conditions under which we do not need a bespoke risk assessment for applications. The purpose of those conditions is to ensure that we focus our attention on those applications that pose a potential risk to pollution. The 'net rated thermal input' thresholds given in the criteria are based on a modelling study by the Environment Agency's Air Quality Modelling and Assessment Unit.

The thresholds are not to be confused with EPR thresholds. The permitting and regulatory requirements depend on the type of waste wood being burnt, whether the waste wood is processed to make it suitable as a fuel and the size of the boiler appliance. Where an operator is proposing to move from oil/LPG heating to a biomass boiler system the environmental impact of air emissions from the new boilers may be different and therefore a variation application is required so that the impact can be assessed. On EPR intensive pig and poultry farms a typical biomass boiler used primarily to heat animal sheds will be treated as a Directly Associated Activity.

2.50 What evidence is there for these threshold values asked union representatives?

Our response: See our response to 2.49.

2.51 A trade association asked in annex B ‘Air emissions from biomass boilers’ for an assessment of emissions not to be required does the operator have to meet all these conditions or just some of them?

Our response: All the conditions need to be met. Fuel type and technical criteria apply regardless of boiler size. The third set of criteria has three options related to the size of the boiler, stack height and the proximity of nearby receptors. The applicant must meet the relevant stack height and proximity criteria associated with their size of boiler.

2.52 Referring to annex B Air emissions from biomass boilers, a trade association suggested that the aggregate boiler net rated thermal input is: "..within 25 metres.." relating to the second bullet is not required.

Our response: We propose to take no action as we believe the message is clear.

2.53 In annex B page 24 first paragraph a fellow regulator suggested that we insert 'nitrogen' after '...nitrogen dioxide..'.

Our response: We believe this change is not necessary as it is covered by nitrogen dioxide.

2.54 In annex B page 24 first paragraph a fellow regulator asked us to please confirm this part includes assessment of nitrogen deposition as well as nitrogen dioxide.

Our response: In developing the screening criteria we considered the potential impacts from NOx emissions (eutrophication and acidification) on nature conservation features. So we believe no change is necessary.

2.55 In annex B page 24 first paragraph after bullets a fellow regulator requested we give examples of when a biomass boiler does not meet the criteria, for example when burning poultry litter waste.

Our response: This section has been amended with additional fuel types. Where the fuel type or the criteria cannot be met the applicant is referred to their Site Officer for a pre-application discussion.

2.56 Conservationists suggested that in annex B page 24, section on Biomass Boilers the distance screening for small combustion plant is inconsistent. See also annex F page 14.

Our response: We acknowledge that there is some inconsistency with the Air Quality Technical Advisory Group (AQTAG)14 and we’re working to resolve this. If the application doesn’t meet the screening criteria then we will conduct a more detailed assessment during the determination of the application.

2.3 The Environment Agency's planned approach to implementing the statutory requirements of the Water Framework Directive (Annex D package of documents)

Summary

There was only a single response to the general approach and its legal framework and that is given below.

3.1 An industrialist sought clarity between the equivalence in annex D for a substance classed as insignificant and the de-minimus test in Schedule 22 of the Environmental Permitting Regulations (EPR) 2010.

Our response: If an input is so small it can be determined not to be a groundwater activity and thus not subject to permitting requirements of EPR. But this provision is only in relation to discharges to groundwater, not to surface water. We refer to this exclusion as “de minimis”. There is no de minimis exclusion for surface water in the Water Framework Directive.

The “de minimis” ‘test’ only applies to discharges to groundwater and derives from the Article 6.3(b) Groundwater Directive (2006/118/EC). The provision is in paragraph 3(3)(b) of Schedule 22 to EPR 2010 and states as follows:

- “(3) The regulator may determine that a discharge, or an activity that might lead to a discharge, is not a groundwater activity if the input of the pollutant--…;
- (b) is or would be of a quantity and concentration so small as to obviate any present or future danger of deterioration in the quality of the receiving groundwater;”

Question 3a: Please tell us if in undertaking this new screening approach for hazardous pollutants in annex D1 you believe you will incur any significantly increased or decreased costs.

Summary

This question prompted a number of responses. We have responded in terms of our role in the Accountability for Regulatory Impact process, which arises when a change in our procedures may result in an increase or decrease in the operator's costs. Changes to our screening approach also prompted a series of questions on topics such as monitoring data, ephemeral streams and the concentration of metals in total and dissolved form. Where possible we have grouped our response to these questions together.

Background to this question

When we consider a change in policy, process or practice which has a significant financial impact on business, the government's Accountability for Regulatory Impact (ARI) process (www.gov.uk/government/publications/regulator-impact-accountability guidance) applies. This requires us to develop a formal Business Engagement Assessment and consult affected business sectors to seek a common view on the size of the impact. Government Departments are responsible for producing Impact Assessments to support new regulation. ARI is concerned with changes to regulatory approaches that fall outside of this process.

The following queries are taken from the responses received to the H1 consultation. Specifically where reference was made to increased or reduced costs resulting from our proposed change to the screening methodology included for hazardous pollutants.

3.2. A water company considered that the proposals within the public consultation should have been accompanied by a regulatory impact assessment. This should now occur once feedback on costs and impacts from stakeholders has been received.

Our response: In part, this consultation was undertaken to determine if the proposed changes would have a significant financial impact (positive or negative) across the affected sectors. This would help us to determine whether the full requirements of the ARI assessment process would need to be undertaken before implementing the change. As explained above, the government is responsible for producing Impact Assessments to support changes in regulation.

3.3. An operator pointed out that the sequential tests in the screening tool require upstream monitoring information. Where this is not currently available on large installations, obtaining this information will result in increased programme costs. These were estimated at £160,000 (£150,000 capital and £10,000 per annum for additional sampling). Further costs will be required for maintenance.

Our response: Operators have the option of obtaining upstream mean background concentrations, but this is not mandatory as part of a permit application. Upstream data will increase confidence in modelling outcomes and any permit limits which need to be set. If upstream data is not available assumptions can be made about the quality of upstream waters. This is acceptable, as deterioration in the river is measured against the EQS, rather than against upstream quality. Modelling outcomes obtained using assumed upstream data are therefore still valid. If there are no upstream data and the discharge is substantial, we accept that operators may prefer to collect and analyse their own data, but this is not obligatory.

3.4. A consultant commented that because of the more restrictive screening criteria, additional modelling will be required to support the assessment of discharges. This will result in increased costs to the operator, on top of what is already required for the analysis of metals and their low EQS. They cited the example of mercury and its compounds for which the EQS AA is 50ng/l.

Our response: This point relates to the screening process for the assessment of discharges into freshwater. In Test three we ask "Does the difference between upstream quality and the Predicted Environmental Concentration (PEC) exceed ten per cent of the EQS?"

In the previous version of annex D there was a two-step screening process where the pollutant was screened out if the PEC was less than 70 per cent of the EQS. The new Step three is a tightening of the screening process to deliver compliance with our long standing 'No Deterioration' policy. This requires control of discharges which cause more than ten per cent deterioration against the EQS. This No Deterioration policy has been applied to water companies and smaller industry for many years. 'No Deterioration' is also a requirement of the Water Framework Directive.

However, where discharges arise from IED Installations, the following will apply:

- The BAT Conclusions Document for each sector will set out what is considered BAT.
- Publication of the BAT Conclusions for each sector will trigger the initiation of an Environment Agency-led review of each permit within the sector.
- Operators within each sector will assess the impact of their surface water discharges where there are concerns about achieving an EQS within the receiving water.
- The need for an operator to go beyond BAT will be assessed on a case-by-case basis taking into account the costs and benefits.

Operators will be asked to provide evidence to inform this assessment.

The purpose of our new screening approach is to identify those substances which are 'not liable to cause pollution' of the receiving watercourse. This enables us and the operator to focus attention on those substances which pose the greatest risk to the environment.

By introducing the four-step screening approach, where step three refers to the No Deterioration test, fewer substances may be screened out. However, we can be confident that any substances which are screened out are not liable to cause pollution. It is accepted that in some cases additional modelling of discharges will be required and this may increase costs for some discharges. However, the modelling for the majority of freshwater discharges will be carried out by us, not the operator.

3.5. A water company thought that it would not incur any direct significantly increased costs by taking on the new screening approach for environmental permits. This was on the proviso that the Environment Agency continues to undertake the Monte Carlo modelling to define any relevant limits that may be required in the permit.

Our response: We have no plans to change our position as regards the undertaking of modelling assessment of discharges to freshwaters using the Monte Carlo software.

3.6. A chemical industries trade body found the eight-week period of public consultation insufficient for them to assess the views of the operators they represent. They added that, aside from the potential cost implications, they were able to conclude that the new screening proposals did not differ greatly from the current H1.

Our response: The consultation period was considered to be sufficient to carry out a high level assessment of the potential financial impacts of the proposed changes. The comments that the new screening proposals do not differ significantly from the current arrangements are also noted. The response suggests the financial impacts would not be significant but any reasonable requests for additional time would have been considered as per previous consultations.

3.7. Concerns were expressed by a water company that additional monitoring and "detailed assessment" for hazardous pollutants and sanitary determinands will involve:

- substantial costs,
- lead-in time to change scientific and technical capabilities, and
- laboratory capacity to process these requirements.

It considered that it is not feasible for such requirements to become mandatory for operators in 2014.

Our response: Monitoring and assessment of hazardous substances is not a new requirement as it was required under the Dangerous Substances Directive (DSD). Many of the hazardous substances are common to the DSD and Water Framework Directive. As stated in annex D, the permitting process for sanitary determinands is unchanged so we do not consider that this will result in increased costs. The costs and technical capabilities for laboratories to measure hazardous pollutants may have increased, but this reflects changes within the EQS Directive. It is not necessary for operators to monitor discharges for all substances that may be present in sewage. However, we would expect testing to be targeted at those substances most likely to be present in the discharge for example those discharged to sewer via trade effluent consents.

3.8 One water company suggested that an RIA should be completed and publicised in the consultation before such a policy change is implemented. This should include where the Environment Agency aimed to restrict any additional pollutant load discharged to water bodies and limit any within class deterioration.

Our response: We do not consider that the new H1 risk assessment procedure substantially changes our previous requirements to limit the pollutant load and limit within class deterioration. Please also note our response to 1 above in respect of the regulatory impact assessments.

3.9 Various respondents expressed concerns that for discharges into lakes, canals, reservoirs or coastal waters, operators would have to carry out their own modelling in phase two. This could incur additional costs, and these costs should be reflected in reduced application fees paid to the Environment Agency.

Our response: Historically, we have used Monte Carlo and mass balance modelling of rivers to determine river needs permits for stand-alone water discharges. Modelling of canals, lakes, reservoirs and coastal waters is not straightforward. In many cases a site-specific hydrodynamic model is needed, and historically the onus for undertaking

this modelling has rested with the applicant. We do not perceive there to be any change to this in our proposals. Neither do we think our role in providing advice about the modelling required, auditing of operator submissions and assessing the model output has changed. Consequently there are no plans to reduce application fees as a result of the proposed change to the screening methodology.

General Information

In determining whether or not the financial impact from the proposed screening approach will be significant, the total impact needs to be considered. The proposed approach applies across the broad range of regulated facilities permitted under EPR. One operator identified additional costs associated with obtaining upstream monitoring information for installations, but did not clarify whether these were considered significant. In our response we have explained this requirement is not mandatory. This is because there is a well developed alternative for modelling discharges without the need for actual sampling and analysis of upstream waters. This enables permit determinations to be satisfactorily completed without additional cost to the operator. In proposing to implement our new screening and modelling approach, step three of the screening process does represent a tightening for discharges from IED installations. However, this is required to enable us to implement 'No Deterioration' which is a requirement of the Water Framework Directive. How we will implement this change across industrial sectors is explained above.

Our conclusion

The responses received suggest that the proposed change may result in some increased costs for operators. However some of the potential costs identified arise from discretionary data collection and analysis.

We will take unavoidable increases in regulatory burden into account in reaching our decision on how to implement the proposed screening approach for hazardous substances. But, as the consultation responses suggest, these are not significant and so we are not required to produce a formal Business Engagement Assessment.

Summary

In response to question 3a we received a number of queries about ephemeral streams and these are grouped together below.

3.10 Looking at annex D1 Test two an installation asked where discharges are made to ephemeral streams should annual rainfall be the basis for calculations?

Our response: Section 5.5 gives some general guidance on dry / ephemeral watercourses and rainfall dependent / intermittent discharges. The section recognises that no one single assessment methodology will be appropriate. The assessment will be driven by the local sensitivities, needs and significance of the receiving watercourse and/or groundwater receptors. For rainfall-dependent discharges making an assessment using annual rainfall for the site may be appropriate. We have clarified this in the guidance.

3.11 An installation asked about calculating significant load based on modelled rainfall data where streams are ephemeral or exist as a result of the discharge. In this case the flow rate of the discharge would be used in calculating the significant load.

Our response: Significant load is calculated from discharge load only and is not affected by receiving watercourse flow. For rainfall-related discharges using rainfall data to estimate discharge flow may be an appropriate approach where flow is not measured. This is assessed on a site by site basis. We have clarified this in the guidance.

3.12 Again relating to ephemeral streams an installation asked if rainfall measured on site could be used to calculate significant loads.

Our response: See the response to 3.11.

3.13 Considering discharges into ephemeral streams, where no upstream data are available, an installation asked if discharge quantities would be acceptable for modelling.

Our response: A pragmatic approach is adopted when permitting the following:

- discharges to dry ditches (see 5.5.2 of annex D1);
- ephemeral streams with the local sensitivities,
- needs and significance of the receiving watercourse and/or
- groundwater receptors driving our approach.

Our approach will be site-specific, for example, where the receiving watercourse is a dry ditch of low ecological and amenity value. Where this joins a larger flowing watercourse within a short distance, flows from this downstream location would be used to undertake the risk assessment.

Modelling cannot be carried out with no river flow data as the outcome of the modelling test would effectively be the same as the screening tests. If the discharge itself has a concentration of less than ten per cent of the EQS, the substance will be screened out. If the discharge quality is less than EQS, it will not cause or contribute to a failure of EQS. We have clarified this in the guidance.

Other responses to question 3a are included below.

3.14 A water company sought clarity on which elements of the Water Framework Directive (WFD) are statutory. It suggested that preventing deterioration of water body quality does not reflect the stated aim "..to restrict any additional pollutant load discharged into the water body." And the modelling approach does not lead with certainty to effluent standards being set.

Our response: The prevent deterioration requirements of WFD are statutory. As stated in annex D our aim is to restrict additional pollutant load. However, restrict does not mean prevent. Our guidance makes it clear that where it is not possible to 'restrict' we will seek to limit within class deterioration. This approach ensures that we meet WFD requirements to protect and improve water quality, whilst also managing discharge quality and pollutant load.

It is correct that the modelling approach does not always result in effluent standards being set. Modelling builds on the screening tests and is a more detailed examination that determines if effluent standards are required.

3.15 A water company concluded it was premature to develop a permitting approach which established a de facto implementation before completion of CIP2 and Government endorsement. This was against the backdrop of their commitment to the Chemicals Investigation Programme (CIP2) which will inform Government policy on the regulation of EQS.

Our response: We agree the CIP2 will provide much useful information that will help inform future permitting policy. However control of hazardous pollutants via permits will continue to have an important role in minimising the impact of substances in discharges. We need a permitting approach now that enables us to meet WFD requirements. The approach will be updated in response to any policy changes that follow CIP2.

3.16 The task of obtaining mean background concentrations at the point of discharge was described by an industrialist and water company as very difficult and expensive. They added that for existing discharges it would be difficult to obtain a background concentration at the point of discharge.

Our response: Mean background concentrations should be obtained upstream of the point of discharge, rather than at the point of discharge. We have clarified this in the guidance. Operators have the option of obtaining upstream mean background concentrations, but it is not mandatory as part of a permit application. Upstream data will increase confidence in modelling outcomes and any permit limits which need to be set. However, if operator or our own upstream data are not available, assumptions will be made about upstream quality. This is acceptable, as deterioration in the river is measured against the EQS, rather than against upstream quality. Modelling outcomes obtained using assumed upstream data are therefore still valid.

Information on background concentrations near the point of discharge can be requested from us and data will be provided where available. We aim to operate in a fair and transparent manner in licensing use of our data and information. In so doing we have to meet various legal obligations that govern access and reuse: these obligations may result in a charge in some cases. Data Share is one way that we share data and statistical information; it is available via this link www.geostore.com/environment-agency. Alternatively, our National Customer Contact Centre can be contacted on 0370 850 6506.

If there are no data, and the discharge is substantial, the operator/applicant may choose to collect their own data in support of their application.

3.17 A consultant asked if the new annex D would be accepted by SEPA or would it produce its own guidance?

Our response: To coincide with the introduction of the Environmental Permitting Regulations (EPR) we alone published H1 in modular format in April 2010. We have since published changes to the H1 system in 2011. H1 remains an Environment Agency only publication. It remains a decision for SEPA should it wish to develop its own version of H1.

3.18 The identity of activities which can operate under a 'low risk position statement' was sought by a consultant.

Our response: There are a number of low risk position statements for activities regulated under the Environmental Permitting (England & Wales) Regulations 2010. For your specific activities you will need to investigate whether a permit is required. For water discharge activities there are currently low risk position statements for:

- Discharge of water from a heat exchange system serving a domestic property (PDF, 66KB)
- Temporary water discharges from excavations (PDF, 74KB)

3.19 A consultant asked when Drinking Water standards (page 10) should be used and their use limited to occasions when WFD standards were absent.

Our response: Where they are applicable, all standards within a Directive or Regulations need to be considered in any assessment. For example, annex D says "Determinands used by the Drinking Water Directive and other determinands specified by water companies to protect water supplies in Drinking Water Protected Areas, must not deteriorate". The use of these determinands is not intended for those occasions when WFD standards are absent.

3.20 Details of the costs associated with the production of predicted no effect concentrations (PNECs) provided by our National Laboratory Service (NLS) were sought by a consultant.

Our response: We currently would not charge for requests as our permitting officers would also require the information to assess the application. We would need to review this position if demand increased significantly and we needed to provide additional resources to this service.

3.21The availability of (PNECs) provided by our (NLS), prompted a consultant to ask will these values be used in assessments and under what circumstances?

Our response: Suitable PNECs will be used as a surrogate EQS where a potentially hazardous substance is being discharged but the substance does not have a designated EQS. Our PNECs are based on a desk top assessment of information readily available in the public domain. However, for some substances we may not be able to provide a PNEC and the operator may be required to undertake their own assessment.

3.22 Assurance on the time taken by the NLS to produce PNECs was sought be a consultant.

Our response: Request for PNECs should be made during pre-application discussions via area staff or permitting officers. They will request the information from our internal Environmental Toxicology Advisory Service (ETAS) and co-ordinate the response to you. Based on current level of demand for this service, we would respond to requests for information within a maximum of 20 working days.

3.23 A consultant noticed that maximum concentration and effluent flow are required for short term assessments and comparison with the EQS Maximum Allowable Concentration (MAC). They asked why not the 95 percentile as it is in current guidance.

Our response: The Part A screening tests of significance are designed to be simple tests on readily available statistics for datasets of 12 or more samples. Where substances are screened out, we are confident that they are not liable to cause pollution. Using maximum effluent load reflects a worst case scenario. This may result in an increased chance of a substance passing forward to the Part B modelling tests of significance. However, when compared with using 95 percentile data, there is no overall change to the outcome of the assessment.

3.24 Must all effluent analysis be undertaken by a UKAS accredited laboratory, asked a consultant?

Our response: Yes, all effluent analysis must be carried out by a UKAS - accredited laboratory. We have confirmed this in the guidance, which now says “must be carried out” rather than “should be carried out”.

3.25 A consultant asked if final effluent concentrations are available only from the water company responsible for managing sewage treatment works (STW).

Our response: Water companies monitor their own effluents as part of OSM (Operator Self Monitoring). These data are submitted to us and we place the data on to our public register.

3.26 A consultant asked if the analysis of ‘priority substances’ can be requested of water companies as they are not usually analysed for?

Our response: We cannot ask water companies to monitor for substances in their discharge unless:

- we have reason to believe the substance is present in the discharge (because it is being discharged into the works by a trader),
- the receiving water body is failing its EQS for a substance and the sewage works is a potential source of that substance.

3.27 A consultant asked if we should be contacted every time an H1 assessment is carried out for the correct reported and target standards which apply with respect to River Basin Management Plans?

Our response: It is not mandatory but pre-application discussions with us are advised. Contact our National Customer Contact Centre, on 0370 850 6506, or local area office. Our documentation will be kept up to date and the Chemical Standards Database is currently the best source of information.

3.28 In the consultation we said we will carry out modelling work associated with discharges to freshwater, with the exception of discharges to lakes, canals or reservoirs. A consultant asked if we will levy a charge for such for such modelling under the terms of the Environment Act 1995.

Our response: The application fee covers the cost of normal permit determination modelling assessments required to calculate the limits needed to ensure any permitted discharge is environmentally protective. In the case of more complex assessments, such as particular sensitive sites or novel technologies, the applicant would be expected to provide the necessary information as part of their application. To do this they would have to undertake (or procure) the necessary more complex modelling and assessments prior to making an application for an EPR permit. Pre-application discussions with us are important to ensure any pre-application work is targeted.

3.29 In the consultation we said 'Operators may also carry out modelling if they wish to, but the Environment Agency will use its own modelling to determine any limits or conditions which are set on permits and/or will audit operators' submissions.' A consultant suggested that to facilitate this it would be necessary for us to make readily available the tools for undertaking such assessments. They referred specifically to the Monte Carlo mass balance model.

Our response: The River Quality Planning suite of applications - which includes the Monte Carlo mass balance tool - is available from us under licence. Contact our National Customer Contact Centre, NCCC on 0370 850 6506.

3.30 Changes in annex D prompted one consultant to ask if any transitional provisions were being introduced to manage the changeover. If so, how would the changeover impact upon assessments currently being developed between an operator and their consultants?

Our response: Internal procedures to implement the screening and modelling procedures within annex D1 are already in place. We suggest that by engaging in pre-application discussions the potential for reworking information that relates to an application can be minimised.

3.31 An opinion expressed by one consultant was that additional costs would be levied on operators if risk assessments need to be revisited. This was because of the introduction of the new annex D, with the potential for delays to the implementation of infrastructure projects.

Our response: We have amended annex D1 to reflect the requirements of the Water Framework Directive. This has resulted in the change to our screening methodology for discharges to surface waters. Applications being determined prior to the introduction of our operating procedure in January 2013 are likely to have been processed using the previous annex D methodology. If so, they will be revisited when the IED permit review mechanism prompts a response to an EPR Regulation 60 Notice.

3.32 One consultant thought the inclusion of section numbers makes annex D1 simpler to navigate. They suggested that section numbers should be retained and included in the final published version of the document.

Our response: Section numbers will be retained.

3.33 Referring to annex D3 a consultant thought this document as unnecessary as it duplicated much of what was in annex D1.

Our response: We will incorporate the current data in annex D3 into annex D1 and annex D2 as necessary.

3.34 A consultant felt it would be simpler to update the Chemical Standards Database with the annex D summary tables and link it to the document(s).

Our response: The chemical standards database is currently being updated to include all the WFD standards, and will be published on the revised gov.uk website. However, the EQS summary tables in annex D will also be kept up to date. They are useful, as they list all the standards which are relevant to this guidance in one place. The chemical standards database includes a wide range of standards. For those who are unfamiliar with chemical standards, it may not always be obvious which standards are relevant.

3.35 Public Health professionals thought the term “hazardous pollutants” was not clearly defined in annex D1. Aware of the specific definition of this term in relation to the Groundwater Directive, they sought clarity on what the term means in annex D1.

Our response: The Groundwater Directive uses the term “hazardous substances”, so it was not appropriate to use this term for substances which are impacting on surface water. Page seven of annex D1 defines “hazardous pollutants” as follows:
“This guidance applies to substances being discharged to surface waters which are covered by the EQSD (priority hazardous substances, priority substances and “other pollutants”). It also applies to specific pollutants and other substances listed in the Ministerial Directions, and substances which have operational (non-statutory) EQSs. These substances are all grouped together for the purpose of this guidance and referred to as “hazardous pollutants”

3.36 An industrialist thought the new screening approach could incur additional costs, due to the ‘heavy reliance on acquiring good quality data for upstream chemical analyses.

Our response: Operators have the option of obtaining upstream mean background concentrations, but it is not mandatory as part of a permit application. Upstream data will increase confidence in modelling outcomes and any permit limits which need to be set. If upstream data are not available, assumptions will be made about upstream quality. This is acceptable, as deterioration in the river is measured against the EQS, rather than against upstream quality. Modelling outcomes obtained using assumed upstream data are therefore still valid.

3.37 An industrialist stated that there would be extra costs incurred by operators to provide both total and dissolved metal analysis.

Our response: Operators have the option of undertaking all tests of significance using just total metal rather than both total and dissolved data. This is a conservative approach and effectively assumes that all total metal could partition into the dissolved phase in the receiving water. An emission limit is more likely to be imposed when the assessment is made using total metal data rather than dissolved metal. However, if the discharge encounters little dilution the use of total metal data is unlikely to affect the outcome of the assessment. In such cases the operator may prefer to provide total metal data only.

3.38 An industrialist presumed the introduction of the new Test three was an interpretation to ensure “no deterioration” within the status of surface waters. They thought “ten per cent” an arbitrary figure which may be useful in screening tests but it should not be rigidly applied to modelling tests.

Our response: We have defined “significant deterioration” as an increase of ten per cent or more of EQS in the receiving water quality. We use this test in both the screening and modelling assessments. Failure of the “significant deterioration” requirement in modelling means that an emission limit is required on a permit. However, it does not define what this permit limit should be. As detailed in the guidance, there is some flexibility when setting permit limits. The flexibility is dependent on the individual circumstance and receiving water quality which takes account of what is technically feasible and affordable.

3.39 A trade association sought clarity on the scope of the new screening assessment. They noted the new guidance states that all substances which are considered to be present in the discharge (as defined) must be assessed. They asked does this mean all substances listed in Appendices one and two of the revised H1 annex D1 if there is no baseline report available.

Our response: We do not expect an applicant to analyse for all substances which have an EQS. If no baseline report is available, applicants should analyse for the substances which are likely to be in the discharge. This is either because:

- they are known to be added to the process,
- they are a known product of the process, and/or
- they have been measured in the effluent of a similar/comparable process elsewhere.

3.40 An industrial trade association noted the limits of quantification (LOQ) for the available test methods for some substances listed in annex D1 are similar to the EQS limits. In such cases, use of the screening approach may not be possible and Phase two modelling would be required. This would introduce significant and disproportionate costs, in particular where reliable analytical data are not available for substances present at concentrations around or below the LOQ.

Our response: Limits of detection (LOD) for analytical methods should ideally be at or around ten per cent of EQS. There are a number of substances where the current LODs for available methods are higher than this, but analytical methods are being developed to remedy this.

We can carry out both screening and modelling using data with higher LODs. For screening, we take all less than values at face value, as this represents the worst-case scenario. If the limit of detection is at or close to the EQS, it is likely that a number of substances will pass through to the modelling stage using this approach.

For modelling, less-thans are taken at half face value. For discharges to freshwaters, we carry out modelling using Monte Carlo, and it is a relatively quick and simple process. However, for discharges to TraC waters, the applicant is required to carry out the modelling. This can be a complex and potentially expensive process, depending on the nature of the discharge and the receiving water. For discharges to TraC waters with high LODs where substances have not been screened out, each discharge should therefore be assessed on a case-by-case basis. This should occur as part of the pre-application process and before any modelling is commissioned. We would work with the operator to assess the substances being discharged. In so doing we would also consider the sensitivity of the receiving water and the potential for significant deterioration and/or EQS failure. We would then agree the actions which needed to be

taken. They may require modelling, re-analysis of the effluent to a lower LOD (if possible), monitoring of the receiving water or a number of other options.

3.41 The refineries trade association sought clarity on what assessments would be required under the IED for discharges to surface waters (e.g. hazardous pollutants). Specifically, whether this assessment will be required as part of the IED permits review or when prompted by revision of the Best Available Techniques reference document (BREF)?

Our response: On publication of the Refinery's Best Available Techniques Conclusions we will initiate a review of the sector permits in England. We will ask operators if they can comply with the BAT Conclusions Document and the BAT Associated Emission Levels. Where there is evidence that the concentration of hazardous pollutants could be an issue in the local water environment, operators will be asked to respond. The response will assess whether their discharge includes hazardous pollutants and if so what could be done to reduce or eliminate those emissions.

3.42 The refineries trade association suggested a very significant investment would be required to deliver compliance with an emission limit value (ELV) set below BAT AELs to meet the EQS.

Our response: DEFRA guidance on the Industrial Emissions Directive (here) makes clear that BAT Conclusions shall be the reference for setting EPR permit conditions. It adds that permit conditions stricter than BAT may be set, but only:

- where this is necessary to ensure that no significant pollution is caused in accordance with the general principle in Article 11, or
- where an environmental quality standard requires this in accordance with Article 18.

3.43 The refinery trade association highlighted the very high costs for refineries to reduce the content of a range of pollutants to ensure compliance with EQS. For larger refineries, such as those in the UK, this was based on the implementation of a technique that is not recognised as BAT for the refinery sector.

Our response: The BAT Conclusions Document for the refinery sector will set out what is considered BAT for refineries. As indicated in the reply above, refinery operators are likely to have to assess the impact of their surface water discharges where there are concerns about achieving an EQS within the receiving water. The need for a refinery operator to go beyond BAT will be assessed on a case by case basis taking into account the costs and benefits. In such cases operators will asked to provide evidence to inform this assessment.

3.44 A water company considered the permitting process beyond the operator taking on the new screening phase. It asked if we will be reducing the period required for the turnaround of permits.

Our response: Since the Penfold report produced by government in November 2011 we have been working to a maximum determination time of 13 weeks. We are not aware of any plans to alter this timescale. Each determination takes into account site-specific factors. These include proximity to designated habitats sites and standard requirements, such as allowing time for the public to consider application details and submit representations. We must allow time for these considerations but, wherever

possible, we will issue a permit as soon as determination is complete. This is often in advance of the 13 week deadline. Good discussions in advance of an application and thorough and complete applications are two things which help us determine applications more quickly.

3.45 Discharges to dry ditches prompted a water company to ask if we would be supplying upstream water quality monitoring data and Q95 flows. If not available how would the calculations be undertaken?

Our response: We will supply Q95 and monitoring data on request, where available. Where these data are not available we can advise of the appropriate data to be used in the calculations.

A pragmatic approach is adopted when permitting the following:

- discharges to dry ditches (see 5.5.2);
- ephemeral streams with the local sensitivities,
- needs and significance of the receiving watercourse and/or
- groundwater receptors driving our approach.

Our approach will be site-specific. For example where the receiving watercourse is a dry ditch of low ecological and amenity value and joins a larger flowing watercourse within a short distance, flows from this downstream location would be used to undertake the risk assessment. We have clarified this in the guidance.

3.46 A multiple-facility installation queried the requirement to cease or phase out priority hazardous substances (PHS). Referring to annex D1, page 10, paragraph 1.4 it wondered if the implementation of this aim would limit their operations with radioactive substances.

Our response: Cease and phase out is a Water Framework Directive requirement which the UK has a statutory duty to comply with. We consider that cease and phase out is a proportionate aim for priority hazardous substances as these present the greatest risk to the environment. The guidance makes it clear that meeting the EQS achieves the cease and phase out obligation, until DEFRA provide further direction. Radioactive substances are not within the scope of annex D of the guidance.

3.47 The same installation suggested that screening should be limited to process-related substances likely to be present in the discharge. Where a substance is continually present at less than the LoD, it should not be considered as part of the screening test or included in the permit.

Our response: Screening should be carried out on all substances likely to be present from any source. We agree with the second statement, providing the LOD is no greater than ten per cent of the EQS.

3.48 Looking at the “inland waters (freshwaters) section (Page 11)” the industrialist thought the document does not make it clear that the screening tests are progressive. However, this is noted in section 2.3.1. It would be helpful to include the statement regarding the ability to screen out substances at any one of these stages in this section.

Our response: We have clarified this in the introduction (Section 1.5.1).

3.49 An industrialist asked us to explain what we mean in section 1.5.2 by “If the impact on the watercourse is unacceptable, the permit application will need to be refused”.

Our response: The permitting outcomes are summarised in Figure 6. Permits would normally be refused where a proposed new discharge of a substance would:

- cause or contribute significantly to a breach of EQS, or
- adversely affect a designated conservation site and there are no appropriate mitigation measures available to an operator to reduce the concentrations of the substance in the discharge to an acceptable level.

We have clarified this in the guidance.

3.50 New screening proposals were submitted by an installation. They suggested where only one or two substances required modelling, the screening criteria should be extended to avoid the need for modelling the discharge.

Our response: All substances which are potentially liable to cause pollution must be modelled, to determine whether they need to be controlled in the permit.

3.51 An installation suggested where high upstream concentrations results in a failure of the PEC, we should focus our efforts on reducing the impact of discharges upstream.

Our response: We identify failing water bodies and target improvements as part of the river basin planning process. Regulating individual effluents which discharge into, or downstream of, failing water bodies is only one part of this overall process.

3.52 An installation suggested that by assuming the upstream concentration of pollutant in the river was ten per cent of the EQS, then the screening test will fail.

Our response: We assume upstream water quality will be at ten per cent or 50 per cent of EQS where there are no suitable sample data. This is influenced by upstream inputs. The “risk of significant deterioration of receiving water quality” test will not necessarily be failed by making this assumption. This is because the test looks at ten per cent of EQS deterioration on upstream quality. However, this test can fail when assuming upstream quality is ten per cent of EQS, if effluent quality is less than EQS and there is low dilution in the receiving water.

3.53 In ’Next Steps’ an installation suggested paragraph B contradicts a previous statement which states if Tests one and two are passed then no further assessment is necessary.

Our response: We have amended this text to make it clearer.

3.54 One of our respondents operates as an installation but also uses radioactive substances. Drawing on that experience they suggested consideration should be given to quantifying uncertainty in the analysis where it’s above the limit of detection. This was preferable to immediately specifying a numerical value for the permit where the limit of detection slightly exceeds the environmental quality standard.

Our response: We include conditions within EPR permits for the monitoring of non-radioactive substances released to the environment. The level of detail depends on

whether the operator is UKAS accredited. If the monitoring organisation or laboratory does not have MCERTS accreditation, then we specify the monitoring method as an extra in the permit. We would also refer to our monitoring guidance note M18. If the operator undertakes their own sampling we would expect this to be undertaken by competent people. This activity would be covered by the management system rather than being separately specified in the permit.

If the operator is MCERTS accredited, then we don't include the monitoring method in the table. This is because the monitoring organisation should have MCERTS accreditation and the lab will be using accredited methods. We would expect an MCERTS laboratory to provide levels of uncertainty with the results.

3.55 Considering part time flows an installation asserted that for such discharges the flow should not be proportionately reduced in the calculations. For example, calculating an effluent discharge of 100 litres/s and 50 litres/s because the discharge only occurs for 12 hours a day is not sound science.

Our response: We are confident that we have adopted the correct approach. In the example given, the annual average discharge flow rate of 50 litres/s is used in relation to the Annual Average EQS. For the MAC EQS, the flow rate of 100 litres/s should be used, as outlined in the last paragraph of section 3.3.2 on page 41 and in section 2.3.1 on page 21.

3.56 Reassurance was sought by an installation whether the approach described in annex D1 section 3.3.3 applies to all watercourses or only those which we regulate?

Our response: Under the Environmental Permitting Regulations 2010 (EPR10), most watercourses and coastal waters are covered by the regulations and therefore the requirements of the annex D1 requirements. This can include isolated lakes and ponds.

The watercourses covered are defined in EPR10 Schedule 21 and relate to 'inland freshwaters, coastal waters or relevant territorial waters…' These have the meanings given in section 104 of the Water Resources Act 1991. In effect this means that lakes or ponds which do not have an outflow are not directly regulated. However the permitting regime can apply if we issue a Schedule 21 Paragraph five Notice. This requires the operator of a discharge into an isolated lake or pond to hold an environmental permit authorising them to be able to discharge.

3.57 An installation suggested the 'liable to contain' test should be limited to substances discharged by the process, rather than substances naturally occurring in the waters, for example as a result of run-off from site contaminated with legacy substances. This should also be considered during the screening phase.

Our response: Where substances are naturally occurring or as a result of previous site contamination they still need to be assessed. Failure of an EQS means that the substance is potentially hazardous and/or toxic to the biota in the receiving environment. Deterioration against an EQS means that the substance is potentially liable to cause pollution. Substances which are "naturally occurring" in waters can also be concentrated or altered by industrial processes, so must be assessed. Substances present in waters which have been abstracted from a different source are classified as not naturally occurring in the receiving water. We would look at naturally occurring substances but would not necessarily include them in the permit.

3.58 One respondent, with a history of ten years of Environment Agency sampling of their effluent, challenged the statement that the limits of detection (LOD) were

mandatory. They suggested this must depend upon the sampling methodology and the matrices of the sample being submitted.

Our response: Section 3.2 of the guidance states that:

If applicants submit sample data which has not been analysed to these LODs, they must provide justification for this with their application. Possible reasons for not measuring to the required LOD include the following:

- Samples may be from varying matrices (e.g. clean water, polluted water, sewage effluent or industrial effluent) and/or may need to be diluted before they can be analysed.
- The discharge may be receiving large dilution, and analysis down to the LOD may not be justifiable as the discharge will not be liable to cause pollution.

The guidance therefore accepts that LODs may vary according to sample matrices or other situations. The guidance also states that:

- If samples have not been analysed to a sufficiently low LOD, the data should be run through screening taking the less thans at face value. If the substance is screened out, no further action is required.
- If the substance is not screened out, more accurate data will be required to determine if the discharge is significant.
- If more accurate data are not available, a monitoring requirement or numeric emission limit will need to be included in the permit as a precautionary approach.

3.59 The same respondent suggested that differing limits of detection have been quoted in results given by us to those presented in section 3.2 of annex D1. They recommended that comparison between the LOD and EQS be used rather those than in section 3.2.

Our response: Limits of detection are often revised, both as EQSs are tightened and as analytical methods improve. We are therefore likely to have quoted differing LODs for a number of substances in the past. Ideally, the LOD should be ten per cent of the EQSs. However, this is not achievable for all substances, and so our laboratory provides a list of the LODs which it currently can achieve. We do not expect operators to achieve LODs which our laboratory cannot achieve.

3.60 Where the LOD is close to or less than the EQS one respondent felt modelling should not be required. They thought the second paragraph on page 46 tried to say this but did not make itself clear.

Our response: We cannot discount substances in a discharge if the analysis has not been carried out to a sufficiently low LOD; we still need to assess them to determine if they are potentially liable to cause pollution. Modelling is the most accurate way to do this.

Less than values are treated as face value in the screening phase regardless of LOD as a simple conservative assumption. For the modelling phase, less than values are taken at half face value. If modelling shows that substances present at this concentration are liable to cause pollution, they cannot be discounted. In such cases we may set an emission limit if there is a risk of significant deterioration and/or an EQS failure. We may also require further monitoring at a lower LOD so that we can make a

more accurate assessment of the impact of the discharge. If there are LOD issues for certain effluent matrices, we would need to address such situations on a case by case basis. We have clarified the guidance to say that for discharge to TraC Waters, where modelling is potentially complex, we would look at each discharge individually. This would be in conjunction with the operator with a view to agreeing a way forward.

3.61 The same respondent asked how the number of samples in Table two was derived.

Our response: The numbers were derived using the binomial distribution. They indicate the number of samples needed to be 95 per cent confident that a substance is there for more than ten per cent of the time.

3.62 One respondent suggested the sentence in paragraph two, page 47 should say that a dataset should contain 12 samples analysed over a year to generate an annual average.

Our response: This response refers to Section 3.3.4 “limited number of samples” which states that a minimum of 12 effluent samples are required for screening and modelling. An annual average can be generated from any number of samples. However the resulting annual average and associated standard deviation are unlikely to represent the true situation if fewer than 12 samples have been used.

3.63 An industrialist challenged the premise that less than values should be expressed as half the LOD for purposes of modelling. They suggested that less than values should be expressed as half the LOD only where less thans exceeded the EQS by more than ten per cent.

Our response: To comply with the Water Framework Directive, we need to limit deterioration as well as ensuring compliance with EQSs. Taking the approach suggested in the question would not do this. It would assume that where the LOD is less than the EQS the substance concentration in the discharge is zero, which often would be unrealistic. This means that many discharges that needed limits to prevent deterioration would not be controlled and deterioration would occur. Using half the LOD for modelling purposes sets the right balance between being fair to the operator and protecting the environment.

3.64 The industrialist went further saying that screening tests should be adjusted to remove substances showing concentrations below the LOD where the LOD was less than the EQS.

Our response: If the LOD is less than ten per cent of the EQS, the substance will be screened out in Step one of screening and will not be modelled.

3.65 The industrialist added modelling should be limited to substances where the concentration is less than the LOD. This should apply where the LOD exceeds the EQS by ten per cent.

Our response: Modelling may be required for any substance where the LOD is greater than ten per cent of the EQS. This is because we are modelling to assess both EQS compliance and deterioration against the EQS in the watercourse. A numeric limit would not be added to a permit where all the measured values for a substance were less thans. If we believed a substance may be liable to cause pollution, it is likely that a monitoring condition would be added to the permit. This would enable data to be collected at a lower LOD.

3.66 One respondent asked us to explain how we will treat discharges that may change the EQS by more than three per cent, particularly where deterioration in the upstream water quality is already at or greater than three per cent?

Our response: The last paragraph of page 53 acknowledges that where there are upstream failures of EQS, a new discharge would not automatically be precluded. A new discharge which would not significantly contribute to the failure of the standard is likely to be acceptable. The 3 per cent of EQS cited is a guide as to what would be regarded as not significant. However, for all water bodies that are failing EQS, we will investigate the causes of failure. Once identified, by implementing our action plan we will reduce pollution from existing sources in the catchment in a proportionate way to achieve EQS compliance.

3.67 Looking at section 5.5.3 of page 62 of annex D1, one respondent suggested that we should not limit discharges where they are caused by rainfall. They added that EPR permits should be limited to process-derived discharges only. Where discharges are contaminated by legacy land contamination these should be dealt with under the appropriate regulatory regime.

Our response: All discharges of hazardous pollutants to surface waters must be assessed. The actions taken and/or control required are assessed on a case-by-case basis. EPR is the appropriate regulation for controlling potentially polluting discharges to the environment. Intermittent discharges which are known to be contaminated need to be included within any assessment when being released to the environment. We appreciate that there are background levels and contamination acquired from legacy activities and the assessments aim to take these into consideration.

3.68 Within paragraph three on page 63 one respondent suggested that discharges should be controlled through SuDs systems and catchment delineation on large sites.

Our response: This is an option for controlling discharges. However, discharges from these systems into surface waters would still be assessed in case they failed to remove all hazardous pollutants in the discharge.

3.69 Continuing the theme, the respondent suggested that only toxicity data gathered from appropriate sources is should be used to derive a threshold value. They added "By this I mean sources that are suitable for the source and the ecology specific for the river/influenced environment."

Our response: We agree that appropriate toxicity data should be used.

3.70 A typo was identified on page 17 where Table 1.3 refers to Table 1.3 when it should refer to Table one.2.

Our response: We will change this before annex D2 is republished on Gov.UK.

3.71 Referring to the same page it was suggested by one observer that the phrase 'Annual Mean' should say 'Annual Average' to be consistent with the rest of annex D.

Our response: We have corrected this in the guidance.

3.72 An industrialist requested we fully explain 'No Deterioration' to our inspectors and provide them with adequate training to avoid any misinterpretations.

Our response: We have informed our staff of the implications of the changes to H1. Support staff will be available to advise front-line colleagues.

3.73 A water company thought it unreasonable for us to require operators to provide extensive and comprehensive sample analysis at the permit pre-application stage, particularly as it covers all substances that may be present in the effluent.

Our response: Sampling and analysis should be targeted at those substances most likely to be found in the effluent at concentrations that are liable to cause pollution. This would include substances expected to be found in effluent such as those that are known to be discharged into the sewerage catchment. It is the operator's responsibility to ensure a good understanding of the substances in their discharge. Our expectation of them as the operator is being able to decide on the substances that need to be analysed for.

3.74 The company added it was also unreasonable because total and dissolved levels need to be provided.

Our response: For the Phase two modelling tests, metals are assessed using both total and dissolved metal data. This will give a fairer assessment of the impact on receiving water quality. This is because not all total metals will exist in the dissolved form (most metal EQSs are for dissolved metals).

In Phase two, the risk to EQS is assessed using total metal data. Although precautionary, this ensures that:

- the EQS will be met downstream. It is rarely possible to predict how much total metal will partition to the dissolved phase in the receiving environment with time; and
- it also controls the total load discharged to the catchment.

The risk of deterioration of river quality is assessed using dissolved metal data, where available. Referring to the percentage change to EQS caused by the discharge, we compare the predicted substance downstream concentration against the EQS. If dissolved data are not available, total metal data should be used, but judgement will be needed when assessing the modelling results. It is likely that permits set on the basis of total metal only will be conservative. Provision of dissolved data will mean that the assessment is more robust and limits will only be set where necessary.

3.75 And finally, it was unreasonable because it requires at least 12 samples to be provided and it covers both effluent quality and upstream (background) watercourse quality.

Our response: We require at least 12 samples to be taken of effluent quality, to provide the confidence needed in using the data for screening and modelling. This is explained in our guidance. Upstream concentrations can be estimated or assumed if necessary. However, operators may wish to obtain a more accurate understanding of these background concentrations to enable a more robust assessment. We will only set limits where necessary.

3.76 One water company said its staff are not trained to collect watercourse samples and therefore cannot be deemed competent to collect reliable and representative samples.

Our response: We expect companies to develop procedures and their staff to ensure they have the competence necessary to deliver this option. Our resources - such as

Operational Instructions - can be made available to any company to use as reference documents for this.

3.77 The same water company added that in order to obtain these samples its staff will require specialist training (arguably by us). Specialist training will bring them up to the appropriate level of competency and ensure their health, safety and wellbeing are not compromised in any manner.

Our response: We expect companies to use their own health and safety management systems and risk assessment procedures to ensure the health, safety and wellbeing of their staff. Our procedures can be made available to companies to help them do this.

3.78 The water company expressed the view that it believes we are the guardians of the water environment upstream of the company's discharge. Hence we should be responsible for obtaining upstream water quality data.

Our response: We carry out the monitoring required to protect the environment, but not upstream of every proposed or existing discharge. Obtaining representative data to support an application will often be a benefit to the operator. If an applicant does not choose this option then assumptions can be made about upstream quality. Such assumptions may result in a more precautionary approach to permitting.

3.79 Finally, the water company stated it does not have the legal right to enter private land to obtain water course samples in support of the H1 assessment.

Our response: We would encourage companies to engage with landowners so that a right to access land to take samples may be found. Alternatively, samples may be taken from a bridge. If samples cannot be obtained then the assumptions about upstream water quality as set out in the guidance will be used.

3.80 A trade body found the terminology in annex D1 confusing. It challenged the substances and pollutants which are defined in England and Wales to form the content of the term 'Hazardous Pollutants'.

Our response: It is useful to have one term to refer to all the groups of substances, rather than listing all the groups each time. "Hazardous pollutants" was considered to be the clearest and simplest term for refer to these substances. We also considered the term "hazardous substances", but this could not be used as it has a different meaning in the Groundwater Regulations.

3.81 Within page eight referring to the sentence "...where hazardous pollutants are likely to be in a discharge..." a trade body sought guidance on what this means. It suggested a reference to the 'liable to contain' regime on page 45 would help. It also asked how does the phrase on page eight 'likely to be in a discharge' differ from the phrase on page 10 'considered to be present'?

Our response: Within our document a link to Section three has been included – this section details how to determine which substances are likely to be in a discharge The text has been changed to make it clearer – there is no difference between "likely to be in a discharge" and "considered to be present".

3.82 Considering whether a hazardous pollutant may or may not be in a discharge, a trade body felt it was not possible to prove this by measurement. They felt that for an existing or new discharge, the decision should allow reasoned expert judgement, based on knowledge of the process,

Our response: We agree that expert judgement could be used in this way. We expect the operator to know what substances are within their discharge and to monitor accordingly.

3.83 A conservation agency thought the previous version of annex D contained a much clearer statement about different standards applied to receiving waters. There was also a link (page seven) to guidance on Habitats Regulations.

Our response: We will copy this link across to the new annex D.

3.84 A conservation agency acknowledged in the majority of cases the EQS for hazardous substances will provide an appropriate benchmark for assessing risks to designated sites. However it identified a set of circumstances where consideration of the need for additional risk assessment for particularly sensitive features was needed.

These are listed below:

> Consideration of the extent of mixing zones and the acceptable area of impact within designated sites. Considered to differing degrees on pages 21, 27, 29, 59, & 80.

Our response: We accept that there may be an area of EQS failure if the EQS is exceeded in the discharge before full mixing takes place. If the discharge is directly to a designated site we will notify the appropriate conservation agency. This has been clarified in the guidance.

> The guidance (page 80) refers to consultation in consideration of discharges to TraC waters which are designated under the Habitats Directive. Clarification of Natural England's role and our role in this process.

Our response: We consult with the appropriate conservation agency during the permit determination or during pre-application discussions for discharges directly into conservation sites. We take the consultation responses into account when making permitting decisions. This has been clarified in the guidance.

> Dosing substances (Aluminium/Iron) (page 33) – consideration of their potential impact on sensitive features vs risks of not managing eutrophication.

Our response: Our permitting processes for dosing substances consider these issues and are designed to ensure sensitive features are protected. We have permitting processes and other measures in place to manage the impacts of phosphorus which is one of the causes of eutrophication. We aim to achieve a balance between these two elements of water quality protection.

> Data used for screening (page 34) should cross refer to the need for particular criteria to be used in relation to conservation sites (page 27). They understood the screening test for discharges less than EQS is not applied in the case of "conservation areas". In these areas it would be unsafe because of the risk of:
>
> (a) cumulative impacts, and
> (b) further deterioration at concentrations above EQS.

Our response: The procedure for conservation areas has been clarified in the guidance.

> Modelling tests (page 53): consideration should be given of any known sensitive species/habitats where application of an EQS may not be sufficiently protective.

Our response: Our permitting approach is based on meeting the EQS and ensuring no significant deterioration. We consider this to be sufficiently environmentally protective. This is because EQSs protect all aquatic life and they include safety factors to take into account any uncertainty in toxicity data.

> Small watercourses (page 61): where these are designated sites it may not be possible to accept deterioration in cases where BAT is not adequate.

Our response: We accept this point and have clarified this in the guidance.

> Application of biotic ligand adjustment for metals. Such assessments should take into account measures underway which aim to reduce DOC concentrations. They will increase the potential bioavailability in sites where such action is planned or underway.

Our response: Reduced DOC is likely to mean that treatment has been improved which is also likely to mean that the concentration of metals is reduced. Bio available standards may be implemented from 2016 and we will be using them to set permit limits. Changes to DOC can be taken into account when permits are reviewed.

3.85 A conservation agency reflected on its working relationship with us within the Joint Nature and Conservation Council (JNCC), and specifically, revisions to JNCC common standards for river SSSIs and the targets for water quality (and flow) which underpin these. It sought clearer reference to the differences in requirements, particularly for sanitary and nutrient determinands, where designated sites are concerned. Its concerns are listed below:

> Relevant pollutants and determinands (page five): the guidance should acknowledge the need in some cases for specific assessment of risks arising from nitrates in discharges in order to meet the requirements of designated sites, including not only TraC waters but also certain N-limited freshwater systems.

Our response: We acknowledge the point being made here. Because of the significance of Dissolved Inorganic Nitrogen in TraC waters and Nitrogen-limited freshwater systems we have amended our guidance accordingly.

> .
> Page five refers to annex D3 where “details of the various physical and chemical standards against which we assess the impact of a discharge may be found”. However, targets established for water quality for Natura 2000 sites and SSSIs are not provided in annex D3.

Our response: The operator should contact us where a discharge is direct to, or could impact on, a designated conservation site, either a Natura 2000 site or SSSI. This will enable us to ensure that correct standards are applied. This is important where local targets have been devised for the protection of such sites, as Natural England will be consulted on the permit application.

Identify Reported and Target Standards (page six): this section stipulates the applicant must contact us to confirm the correct reported and standard targets that apply. The conservation agency suggests that for conservation sites we should add that they will be contacted by us to confirm the targets for designated sites.

Our response: We have amended our guidance to include a sentence indicating that we will contact Natural England to confirm the targets for designated conservation sites. This will apply where the discharge is direct to, or could impact upon, a designated conservation site, either a Natura 2000 site or SSSI.

How to achieve 'no deterioration' on page seven. The conservation agency acknowledges that whilst the ideal is for no increase in pollution loads, the guidance permits within class deterioration of up to ten per cent. They advise that this approach would be of concern if applied to designated sites, and especially to sites designated under the Habitats and Birds Directives where it may be difficult to conclude that ten per cent deterioration will have no adverse effect. Deterioration beyond the target water quality objectives for such sites would be the prime consideration rather than deterioration to class boundaries. In addition, the risks from cumulative impacts over a period of time would not be addressed by the proposed approach. For Natura 2000 protected areas, an assessment of the proportionality of costs to benefits helps to ensure the most cost effective approach is taken. However this would not be a valid consideration in determining the need for measures.

Our response: Our position on 'no deterioration' is that within-class deterioration is limited as far as practicable. We are not ruling out a permissible deterioration of more than ten per cent. However, where such deterioration is proposed the applicant must demonstrate to us that such deterioration would be appropriate. Page eight states that "If you think that you cannot achieve a permit limit that will allow for ten per cent deterioration or less you must contact us".

The requirements of the biodiversity designation must be considered alongside those of 'no deterioration'. Our guidance, in itself, does not permit the automatic allowance of ten per cent deterioration where other circumstances come into play. We would always look to the most stringent appropriate criteria being used in determining what is acceptable deterioration where there are multiple target standards.

With regard to cumulative impacts the backstop would be not passing the threshold of the most stringent appropriate standard. The suggestion is now that where the Habitats Directive screening thresholds determine that an Appendix 11 would be required, then it halts the self calculation of permit limits.

Discharges with little dilution (page 30): decisions over such discharges should be dependent upon the sensitivity of the receiving small watercourse and its designated site status.

Our response: This is addressed in Section 5.5.2 of the guidance; we have added further detail to this section in response to some of the comments received. Where a river target may fail we will look at the site-specific conditions to see if that failure is acceptable for the water body concerned. The sensitivity would be integral to the making of that decision. It would be a decision for us, not the applicant, to make in

consultation with interested parties.

3.86 A conservation agency observed annex D3 lists EQS and other standards we apply, but fails to detail those targets which underpin conservation objectives for conservation sites. Although impractical they felt that reference is needed to the fact that:

- Protected site targets may differ from those listed for determinands in annex D3, especially phosphorus and other sanitary determinands.
- These targets are not included in annex D3 and would need to be confirmed for the water body in question on a case by case basis.

Our response: We will contact Natural England to confirm the targets for designated conservation sites. This applies where the discharge is direct to a designated conservation site, either a Natura 2000 site or SSSI, or could potentially impact a conservation site.

3.87 A conservation agency stressed that the annex D Overview document should stress the potential need for more complex modelling. This is particularly relevant where nature conservation sites, sensitive ecological receptors or protected habitats are nearby.

Our response: We recognise that there may be a need for more complex modelling in these circumstances, but this is not always the case. Any modelling needed should be appropriate to the particular circumstances. A sentence indicating that appropriate modelling is likely to be needed has been added to the sentence at the bottom of page eight.

3.88 A conservation agency stressed the need for clearer reference to the differences in requirements, particularly for sanitary and nutrient determinands, where designated sites are concerned.

Our response: We will add text to the overview section of annex D2 to reflect this need.

Question 3b: Do you have any comments on the additional paragraph in annex D1 in the section on estuarine and coastal waters entitled "Screening Limitations"?

Summary

Only three responses were received on this new paragraph to the screening approach for TraC waters.

3.89 A Water company thought Test 1 of Part A was a simple test that was consistent with WFD compliance. However, they thought the justification for not applying the “screening exceptions” was unclear.

Our response: We have clarified and revised the text on the screening exceptions and the justification in the annex D1.

3.90 A consultant thought the Screening Exceptions section was unhelpful, as the bulleted examples presented are sufficiently vague to be open to interpretation. This is because they are potentially applicable to a number of circumstances, which leaves the impression “if in doubt proceed to modelling”.

Our response: The text on the screening exceptions and the justification have been clarified and revised in annex D1.

3.91 The consultant added that Screening Exceptions were not included in the Environment Agency’s internal operating instruction 17_13, even though we had referred to them when undertaking screening assessments of discharges to TraC waters.

Our response: Any text on the screening exceptions will be included in the appropriate sections of the annex D1.

Question 3c: Do you have any comments on the method for calculating the PEC in annex D1?

Summary

The availability of upstream background concentrations and our implementation of the 'no deterioration' rule were a common feature in responses to this question. Some responses covered issues such as mixing zones, effective volume flux and naturally occurring background concentrations.

3.92 It was felt by a water company that this test is very conservative and should be limited in its scope to the assessment of discharges from installations.

Our response: Test three is bringing installations into line with the approach used for other water discharge activities. It is in line with the no deterioration requirements of the Water Framework Directive. It is important to have a consistent approach regardless of the activity generating the discharge.

3.93 Although offering no comments on the methodology for calculating the PEC, a water company felt the lack of background concentrations was a concern to them. They felt the lack of data and sample points would result in the need to approximate background concentrations. When combined with the lack of river flow meters, resulting calculations would be very conservative.

Our response: Information on background concentrations near the point of discharge can be requested from us and data will be provided where available. Section 3.3.3 of annex D1 provides sources of information on upstream water quality and flow. We aim to operate in a fair and transparent manner in licensing the use of our data and information. This we do whilst meeting the various legal obligations that govern access and reuse. There may be a charge. Data Share is one way that we share data and statistical information; it is available via this link www.geostore.com/environment-agency. Alternatively, our National Customer Contact Centre can be contacted on 0370 850 6506.

If there are no data, and the discharge is substantial, the operator may need to collect their own data in support of their application.

3.94 Confirmation of the existence of a database containing river and/or TraC water quality data (water hardness, turbidity, water depth, alkalinity etc) was sought by a consultant.

Our response: Where we have information and data we endeavour to make it as freely available as possible. We aim to operate in a fair and transparent manner in licensing use of our data and information whilst meeting the various legal obligations that govern access and reuse. There may be a charge. Data Share is one way that we share data and statistical information; it is available via this link www.geostore.com/environment-agency. Alternatively, our National Customer Contact Centre can be contacted on 0370 850 6506.

3.95 Will we make upstream river data available to third parties?

Our response: Where we have information and data we endeavour to make it as freely available as possible. We aim to operate in a fair and transparent manner in licensing use of our data and information whilst meeting the various legal obligations that govern access and reuse. There may be a charge. Data Share is one way that we share data and statistical information; it is available via this link

www.geostore.com/environment-agency. Alternatively, our National Customer Contact Centre can be contacted on 0370 850 6506.

3.96 An industrialist observed that the calculation of Effective Volume Flux (EVF) now includes a value for 'background concentration'. They asked if this data is readily available for TraC waters.

Our response: Information on background concentrations near the point of discharge can be requested from us and data will be provided where available. We aim to operate in a fair and transparent manner in licensing use of our data and information whilst meeting the various legal obligations that govern access and reuse. There may be a charge. Data Share is one way that we share data and statistical information; it is available via this link www.geostore.com/environment-agency. Alternatively, our National Customer Contact Centre can be contacted on 0370 850 6506.

If there are no data, and the discharge is substantial, the operator may need to collect their own data.

3.97 A consultant asked if guidance was available on how the risks from a surface water discharge to a downstream ecological site should be assessed. Or was a simple assessment of the impact on potentially sensitive sites in the area sufficient.

Our response: The guidance ensures compliance with the EQS and limits deterioration within class so downstream ecological sites will be protected. If specific conservation standards exist they will be applied. We hold separate guidance to ensure that these are taken into account when making permitting decisions.

3.98 One consultant asked how far downstream of the discharge should the assessment boundary be drawn for assessing impacts on ecological sites?

Our response: We use a range of ecological screening distances dependent on the volume and type of discharge. These range from 50 km to as little as 50 m. We follow a source, pathway, receptor model to identify any potential risks from a discharge, by using a mapping tool. If any ecological receptors such as protected sites, habitats or species are identified we consider these in more detail and liaise with nature conservation advisors. Depending on the site and the species identified we may search downstream to the estuary and upstream to the headwaters, to protect a migratory species. However for the majority of assessments the distances are considerably smaller.

3.99 Querying the situation where a pollutant is not assigned an EQS MAC but does have an EQS AA, a consultant asked if an assessment of the discharge based on EQS AA results in a failure of the H1 screening assessment, is this true failure.

Our response: All assessments in the screening and modelling tests compare the relevant calculated quality statistic with the comparable EQS statistic. If there is no MAC EQS, a short term assessment is not required for the majority of discharges. In deriving the EQS values, where a substance has only an AA EQS, compliance with this value was considered protective against short term pollution. The guidance is directed principally at continuous discharges and site-specific advice would be required for intermittent discharges. Section 5.5.3 does suggest that for infrequent discharges, compliance with the MAC EQS would be most appropriate assessment criteria. It also suggests that where no MAC EQS exists the AA EQS should be used in the first instance. Using an AA EQS in these circumstances is conservative and a pass of the screening tests means the discharge is not significant. However a fail does not necessarily mean the discharge is significant, only that a more detailed site specific

assessment needs to be undertaken. This will help us to determine the potential impact.

3.100 If a river is classed as ‘good’ or ‘moderate’ then should the corresponding EQS for that water class be utilised rather than the most stringent EQS?

Our response: It is taken that the question relates to the broader range of environmental standards, including sanitary parameters, not just WFD priority substances. Surface water will potentially have a number of different objectives (such as WFD sanitary classes, no deterioration, and Habitats directive). Where there are multiple objectives for receiving water, the aim is to protect the most stringent. EQSs do not vary according to the classification of a river. Substances usually have only one or two EQSs standards (an annual average standard and/or a maximum allowable concentration), and these must be complied with in all classifications of water body. A few standards vary according to water hardness. The appropriate standard must always be complied with, irrespective of the other aspects of water chemistry in that water body.

3.101 An explanation of how the Environment Agency will assess the applicability of third party sewage treatment reduction factors (STRFs) was sought be a consultant.

Our response: You may submit site-specific STRFs if the operator of the sewage treatment works is prepared to share them. Details of the data source should be provided by the applicant.

3.102 If third party STRFs are used in assessment of a surface water discharge, a consultant asked what supporting evidence would we require before accepting the data?

Our response: You should provide a written statement from the provider of the site-specific STRFs explaining the data source and the validity of the values.

3.103 In the absence of river quality data the guidance suggests assuming ten per cent of the EQS in ‘clean’ watercourses or 50 per cent in polluted water courses. On this basis how would rivers be classed as ‘polluted’?

Our response: A suitable definition is provided on page 42 of annex D1. If you are aware of upstream inputs of the substance you are assessing, you should assume the upstream concentration is half the EQS. If you are not aware of any inputs, you should assume ten per cent. In practice, the assumptions which you make should not affect the screening or modelling results. Unless you are discharging high concentrations of the substance and/or the dilution of your discharge in the receiving water is very low. This has been clarified in the guidance.

3.104 It was suggested by a consultant that the new screening criteria are too stringent to be effective. They cited using the Q95 river flow, including outliers, total metal concentrations, and using concentrations of substances recorded below the LOD at the LOD. In such a scenario they considered it highly unlikely that all substances will be screened out of the assessment.

Our response: Assessments are carried out in two stages - screening and modelling - with substances potentially being screened out as not significant in either stage. Although the assessments are effectively the same in each stage, screening uses conservative assumptions as you indicate, whilst modelling uses more accurate assumptions. The screening phase is not designed to screen out all substances but is

meant to be a coarse screen. This requires minimum effort in data handling to identify substances that are not at concentrations which are liable to cause pollution.

3.105 A consultant suggested it was unclear how Test three would be applied in situations where the background concentration upstream of the discharge exceeded the EQS.

Our response: Where upstream EQS is failed then screening Test three can still be undertaken using the failing upstream quality. It will be Test four of screening in these circumstances that will be the deciding test as to whether to pass through to modelling. Test four will only be passed if effluent quality is significantly better than EQS and dilution is low. This means the effluent effectively dilutes the river so that it is no longer at risk of failing EQS. In this case, Test three will also be passed as the difference between PEC and upstream quality will be a negative per cent of EQS. The following text on page 53 of the document explains the approach if the EQS is failed upstream of a discharge:

"If the EQS is already failed in the receiving watercourse upstream of the discharge, then it may still be possible to permit the discharge. Deterioration should be limited to a less than 3 per cent change in EQS, providing this will not prevent the water body achieving good status if all other improvement measures for the water body are implemented. This would be determined by the Environment Agency."

3.106 A change in the text to section 5.3.1 of annex D1 was proposed by a consultant. They wanted to see the phrase "the concentration relative to the.." inserted before the words EQS in the sentence beginning "Deterioration should be limited..."

Our response: This change has been made in the guidance.

3.107 An industrialist observed a change in calculation of the Effective Volume Flux (EVF) when compared to the previous mixing zones guidance. Previously a discharge could be considered as insignificant if the EVF was less than 5 m^3/s, this has reduced to 3.5 m^3/s, which could result in fewer discharges being screened out.

Our response: The European CIS Guidance on Mixing Zones is guidance and does not set out a mandatory process. Having completed a detailed assessment of the EVF we arrived at the revised figure of up to 3.5 m^3/s. This is consistent with a mixing zone no greater than 2000 m^3. This will result in some discharges being referred to detailed modelling where they would not have been if the value of 5 m^3/s was used. We are comfortable with this, due to the detailed assessment we have undertaken.

3.108 An installation considered the need for upstream background data for Test three. They suggested where these data are not available or representative of the discharge that site-based groundwater and surface water samples from around the site should be used.

Our response: Only data that meet the necessary quality assurance protocols could be used in place of upstream monitoring data.

3.109 An installation suggested where background concentrations are naturally occurring the levels upstream should not be taken into account where it naturally exceeds the EQS. They cited the example of metals such as nickel and potassium-derived radioactivity.

Our response: annex D does not apply to radioactive substances. The following text is paraphrased from page 53 of the document and explains the approach if the EQS is failed upstream of a discharge:

- If the EQS is already failed in the receiving watercourse upstream of the discharge, then it may still be possible to permit the discharge. Deterioration should be limited to a less than three per cent change in EQS. This is acceptable providing it will not prevent the water body achieving good status if all other improvement measures for the water body are implemented. This would be determined by us.

- Where substances are naturally occurring this approach still needs to be used. Failure of an EQS means that the substance is potentially hazardous and/or toxic to the biota in the receiving environment. In such situations we must do all we can to limit its impact.

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3.110 Figure five of annex D1 prompted a question from an installation. They asked if it was possible to calculate annual loads based on total concentrations and dissolved concentrations. This requires having regard to heavier contaminants adhering themselves to suspended load, rather than being dissolved within the water itself.

Our response: Total contaminant concentration is used to define the load. It is not known how the contaminant will be partitioned in the receiving waters after it has been discharged. The screening test is intended to be precautionary.

3.111 An installation asked us to explain why we had selected ten per cent as an appropriate percentage of deterioration allowable in a main river.

Our response: The ten per cent deterioration criteria is a long standing element of water quality discharge regulation. It ensures headroom is shared fairly between operators and is not consumed by the first operator to discharge a substance into a water body. It also allows us to be aware of and monitor where an EQS may be threatened and take action to prevent EQS failure. Accepting a greater deterioration could result in inadvertently failing the EQS because of data inaccuracies or modelling uncertainty.

3.112 A trade body suggested that the PEC increase of ten per cent of EQS would lead to more modelling than would previously have been the case. Previously screening was with the PEC less than 70 per cent of the EQS. They thought that WFD no deterioration has normally been construed as relating to a change in the WFD status. Yet for the chemical substances considered here their contribution to change the status is linked to the meeting of EQS in a pass/fail way. Hence where there is considerable headroom in concentration terms, the criterion will lead to modelling work and assessment. The output of which will merely confirm that the discharge presents no threat to the EQS. They added this criterion seems more related to our internal 'no deterioration' policy, relating to allocation of remaining headroom.

Our response: Ten per cent is the threshold whereby a permit limit is required. However, we have flexibility in what permit limit we set depending on site specific circumstances.

The ten per cent deterioration criteria is a long standing element of water quality discharge regulation and is designed to ensure that headroom is shared fairly between operators and is not taken up entirely by the first operator to discharge a substance into

a water body. This approach also allows us to be aware of and monitor where we have evidence that an EQS may be threatened and take action to prevent EQS failure. This might not be possible were we to accept a greater deterioration which could result in inadvertently failing the EQS because of data inaccuracies or modelling uncertainty.

3.113 A trade body observed that calculation of the PC and PEC are based on Q95 river flow, but CIS Mixing Zones guidance is based on Q90, both using four per cent as a screen. They asked why the difference? In presenting a significantly more stringent screening test than the European version, the H1 criterion would be expected to create additional requirements for more detailed analysis.

Our response: The CIS guidance is based on the Q90, but we routinely use the Q95, which is more readily available than the Q90. We have taken a slightly more conservative screening approach to that presented in the CIS guidance.

3.114 It was noticed by a trade body that on page 21 the Environment Agency refers to EU Mixing Zones guidance in context of four per cent PC criterion. They added that EU guidance, however, is based on Q90 and annex D on Q95 and hence is more stringent. They asked why?

Our response: The EU Mixing Zones guidance is based on the Q90, but the Agency routinely uses the Q95, which is more readily available than the Q90. We have taken a slightly more conservative screening approach to that presented in the EU Mixing Zones guidance.

3.115 Looking wider the trade body asked 'how are restricted dilution/dispersion characteristics defined in TraC waters?'

Our response: We have drawn up a list of sites which we consider are potentially of restricted dilution/dispersion. Applicants should contact us to see if the discharge is to one of these areas.

3.116 Within Phase two modelling for freshwaters, a trade body noticed that Tests 1a & 1b are based on total metals (although the EQS may be set in the dissolved fraction). They argued that Phase two modelling should then be based on the relevant metals fraction.

Our response: The EQSs for metals are expressed as dissolved metal concentration, with the exception of zinc, which is currently set as a total in freshwater. For Phase two modelling, some tests use total metal data, some use dissolved. Total metal data are used when assessing the risk of exceeding the EQS downstream of the discharge (Tests 1a &1b). This is precautionary because we are assuming all metal in the discharge has the potential to enter the dissolved phase downstream of the discharge. This approach enables us to predict how much total metal will partition to the dissolved phase both temporarily and spatially downstream of the discharge. In undertaking this approach we are aware of complications such as changes in receiving water or sediment chemistry and other environmental processes. Bio available standards for some metals have been developed and will replace existing dissolved metal standards once the relevant legislation comes into force. A new approach to metals permitting is being developed to enable us to implement these changes.

3.117 The lack of the use of soil water partition coefficients in the calculation of sediment bound metals concerned one industrialist. They concluded that by taking a maximum analysed total and assuming all is released, we had adopted an overly conservative approach at the screening stage. This resulted in substances requiring modelling that might otherwise not require it.

Our response: Total metal data are used when assessing the risk of exceeding the EQS downstream of the discharge (Tests 1a &1b). This is precautionary because we assume all metal in the discharge has the potential to enter the dissolved phase downstream of the discharge. We use this approach as it is rarely possible for us to predict how much total metal will partition to the dissolved phase both temporarily and spatially downstream of the discharge due to changes in receiving water or sediment chemistry and other environmental processes. We must be confident that substances that are screened out are not going to be liable to cause pollution.

This approach may mean that some substances pass through to the modelling stage rather than being screened out. Modelling uses a combination of dissolved and total data to assess the overall impact on the receiving water, and therefore assesses the likely impact more accurately. Modelling will therefore show that some substances which have not been screened out are not liable to cause pollution, and these substances will not need to be controlled on the permit.

Bio available standards for some metals have been developed and will replace existing dissolved metal standards once the relevant legislation comes into force. A new approach to metals permitting is being developed to enable us to implement these changes.

3.118 Phase two modelling, Test two (UK criterion of no more than ten per cent of headroom) concerned one trade body. They asked how the risk of effluent deterioration is assessed in practice.

Our response: The risk of effluent deterioration is assessed using Modelling Test three “risk of effluent quality deteriorating significantly”. This test may be applied to the concentration of a substance being discharged by a trader. We use modelling to determine if discharging at the permitted concentration could potentially be liable to cause pollution. Dosed substances would also be assessed using this test.

3.119 Referring to the term ‘raw data’ a trade body asked for a clear definition of what this means. They presumed it means valid data having undergone basic laboratory QA/QC checks but no use of statistical techniques to detect and remove unrepresentative data. They also asked if raw data will always be biased ’high’?

Our response: “Raw” data have undergone basic laboratory QA checks but have not been “cleaned up”. There is no adjustment of “less than” values or removal of outliers. Raw data will usually be biased “high” as less than values are taken at face value. High outlier values will also bias the data “high”; less commonly, there could be a low outlier value which biases the data “low”. For clarity, a definition of “raw” data has been added to the glossary.

3.120 A trade body asked how data that are below the LOD or LOQ should be treated in the analysis. How is that linked to the expert judgement in ‘liable to contain’?

Our response: This is addressed in Section 5.1.3 of the guidance – Adjustment of “less than” values and low results in the data – as follows:
“.....In addition, sometimes positive values are reported below the LOD e.g. the LOD for a substance may be 10, but the reported value may be 8.8. In this situation the result of 8.8 should be assumed to be accurate and should be retained for modelling. This is not a common situation, and it does not fit well with the definition of liable to contain”. However, where “real” data are measured rather than less than values, they should be used.

3.121 Considering page 20, with an effluent concentration less than ten per cent of EQS, a trade body asked what statistic or characterisation of an effluent is to be used? They added there could be variable or incremental concentration in the effluent.

Our response: If the EQS is an annual average, average effluent concentration should be used. If the EQS is a MAC, the maximum effluent concentration should be used. Section three of the guidance gives details on how to generate the data to use in screening. Section 3.3.1 gives information on how to calculate effluent concentrations. Refer to section 2.2 for guidance as to which EQSs need to be included in the screening tests.

3.122 A trade body noticed that on page 20 Test two uses, for example, maximum effluent flow x maximum effluent concentration to determine maximum load. This may substantially over- estimate the maximum load, and so they suggest that the guidance refers to mean load and maximum load. This is the case for TraC waters on page 31.

Our response: We will revise the guidance to reflect these suggestions.

Question 3d: Do you have comments on the use of the mixing zones approach for calculation of the process contribution for discharges from installations and waste sites to estuarine and coastal waters (salt water)?

Summary

Responses to this question focused on the definition of effective volume flux and the assessment of large discharges from power stations.

3.123 Considering the assessment of discharges into TraC waters, a consultant asked which software models can be used for TraC 'simple modelling'?

Our response: There are many models of differing complexities which can be used to undertake hydrodynamic and water quality modelling in TraC waters. The model chosen should be fit-for-purpose and suited to the task. We can give advice and approve the use of specific models on a site-specific basis.

3.124 Clarity was sought by an industrialist over the need for MCERTS flow data. They asked what does it mean if flow data used to obtain maximum and mean daily volumes over the last three years were not from an MCERTS accredited source?

Our response: Flow data can be unreliable, and the MCERTS scheme is designed to give greater confidence in the accuracy and validity of the data. Where the flow monitoring equipment is not MCERTS certified, it is important that extra efforts should be made to validate it. This could involve plotting the data, analysing it for trends, looking for step changes and making a judgement as to the validity of the data.

3.125 A trade body posed an interesting power station scenario. An effluent stream from a sub process meeting BAT was routed to discharge via the site cooling water system. They suggested this should not necessarily trigger a need for modelling with respect to each of the components of the discharge introduced via the sub process. Modelling of new plant cooling water systems apart, there should be no requirement to necessarily consider other substances introduced by non cooling water processes.

Our response: Modelling each component of the discharge from a sub process meeting BAT, routed to discharge via the site cooling water system would not be necessary. We are considering that power stations with once-through or partially once-through cooling water systems should be a special case. In such cases the existing H1 screening method is not appropriate to the process waste streams which are routed into the cooling water systems. We are reviewing our methodology for assessing modelling requirements under these circumstances and are discussing this with relevant industry sectors. However, it is expected that modelling will always be required for the temperature and total residual oxidant in the cooling water discharge. This is because the EQSs for these will be exceeded, resulting in the need for a mixing zone assessment for these pollutants.

3.126 Citing Test three on page 28, a trade body found the criterion for limited dilution/dispersion unclear. Does it relate to either:

- limited capacity for mixing in the vicinity of the outfall, or
- longer-term considerations related to the potential for the occurrence of a non-trivial, long term effluent field in continuous operation.

They felt it was not clear how the classification of limited dilution/dispersion links to the scale of the discharge under consideration. They thought it surely should.

Our response: The criteria for limited dilution/dispersion links to both:

- the potential for limited capacity for mixing in the vicinity of the outfall, and
- to considerations related to the occurrence of a non-trivial long-term effluent field in continuous operation.

There is a linkage between the potential modelling required and the scale of the discharge under consideration. However, failure of Test three will cause the operator to discuss with us:

- what modelling is required, and
- what is appropriate for the scale of the discharge and the sensitivity of the receiving waters?

3.127 Looking at Test five, a trade body found the concept of Effective Volume Flux (EVF) less than transparent. They suggested it may be easier to re-cast it as a limit on load. Where the EVF was 3.5 m^3/s the condition was equivalent to an allowable load m [kg/s] of 3.5 [m^3/s] * (EQS-BC) [kg/m^3], where BC is Background Concentration.

Taking the screen able mixing zone of 2000 m^3 they suggested it may be helpful to include this as an alternative criterion. They suggested simple mixing models like CORMIX (used widely for industrial discharges) may be interpreted to provide this volume. It takes account not only of the basic receiving water geometry, but also the mixing induced by the outfall and buoyancy of the discharge.

Our response: EVF is not simply a limit on load; it is a load relative to the EQS. This is an important difference.

The proposal to model the discharge with Cormix, to check if the mixing zone is less than or greater than 2000 m^3, seems to defeat the object of the EVF screen. The EVF screen is in place to avoid the use of models. If the applicant wishes, they can go straight to modelling and miss out the screening stage.

2000 m^3 is very small in the context of some TraC waters and failure of the screening test five is only a signal to undertake detailed modelling. Following modelling, we may accept a mixing zone very much larger than 2000 m^3.

3.128 The technical WFD definition of water body featured in a query from a trade body. Excluding substances abstracted and returned for once-through cooled systems they sought clarification that in this context, water body is used in a generic way. Also it does not refer to the technical WFD definition of water body. Their scenario was a once-through cooled plant abstracting from one WFD water body and discharging to a different WFD water body. However the two WFD water bodies have the same physical extent.

Our response: This is covered in section 3.1 of annex D.

3.129 A trade body felt it inappropriate that the risk to EQS should be based solely on regarding total metal as if it were dissolved. Accepting this precautionary approach for:

- metals known to partition to suspended solids, and
- with the EQS set in the dissolved phase

they thought such a coarse assumption was incompatible with detailed Phase two modelling.

Our response: It is accepted that this is a precautionary approach but this is not a new approach. We have practiced for many years assessment of the risk a discharge poses to water quality and EQS using total metal discharge data. Metals with a strong affinity to partition with solids in the effluent will predominantly be removed with those solids during the effluent treatment process. However, we accept that metals attached to suspended solids will be carried over in the discharge.

3.130 The wording of the TraC waters methodology prompted a trade body to conclude the implied assumptions about outfalls are not valid for power station discharges. They added that initial dilution is defined in the guidance as referring to dilution occurring in the early jet/plume phase of a buoyant discharge. This assumes the discharge is subsurface, which is not necessarily the case at power stations. They thought the initial dilution concept could usefully be defined as the mixing occurring in the vicinity of the outfall. But this was prior to locations at which PC and PEC are required to be evaluated. They identified the key term as 'vicinity' and suggested this should be capable of being determined on a site-specific basis. They thought this was particularly relevant to power sector discharges which are often cited on very large water bodies.

Our response: Initial dilution as we define it is not really relevant to cooling water discharges. Again, we propose that power station discharges are a special case, and detailed modelling for temperature and TRO should be the default position for these discharges. For process streams discharged into the cooling water system, the methodology for assessing modelling requirements is being reviewed. See response to 3.125.

3.131 Use of the word 'reflects' on page 59 of annex D1 was welcomed by a trade body. Specifically in the context of permit limits, reflecting modelling assumptions, and in the case where modelling has demonstrated that a mixing zone will be acceptable. They thought it inappropriate for permit limits to simply 'echo' the specific modelling case(s) submitted. They suggested a modelling case might stand proxy for a number of real world situations. And moreover they thought permit limits should take account of the real world fluctuations which cannot readily be included in practical modelling. They suggested modifying the text to 'the precise form and detail of the permit limits should be agreed through detailed discussion with the applicant'.

Our response: We discuss numeric limits with the applicant as early as possible during permit determination, as detailed discussions may be required. There is also a final operator review before a permit is issued. This provides an opportunity to resolve any factual errors (e.g. addresses, NGRs) rather than asking the operator whether they agree with our conditions.

3.132 A trade association did not see use of the 'river needs' approach for limiting new discharges as appropriate in all circumstances in all water bodies. They saw no reason why a new installation discharge, providing it meets BAT, should not be permitted with a PC greater than ten per cent of EQS. This would be on a case specific basis. It would only apply where the new discharge does not threaten compliance of the receiving water body. This means the resulting PEC is compliant with the EQS beyond an acceptable mixing zone.

Our response: Where PEC is greater than ten per cent of the EQS above the background concentration, the discharge is significant and should be subject to detailed modelling. Once detailed modelling has been completed, if there is more than ten per cent deterioration against the EQS, a permit limit will be required. However, we

have some flexibility when setting permit limits. Depending on the individual circumstances and receiving water quality; the limit can be set to allow more than ten per cent deterioration in some situations. This approach is consistent with our no-deterioration policy.

Section 6.3.3.1 of annex D1 contains a table which shows the various options when setting a permit limit. Where a discharge from an installation into surface water meets BAT, the discharge may be acceptable. Even if the discharge caused more than ten per cent deterioration, providing it did not threaten overall compliance with the EQS in the receiving water. However, if the EQS is threatened and/or the deterioration caused by the discharge is substantial, we may apply a permit limit tighter than BAT. If no BAT limit is defined for the substance, we would determine an appropriate limit consistent with BAT.

3.133 Following on from the previous point, the trade association looked to us to modify the current text in some circumstances such as where there is little likelihood of other dischargers wishing to develop new plant that would add significantly to the existing installation contributions. They also sought clarification if this proposal is 'allowed' in the option hierarchy in the table on page 78 of annex D1.

Our response: Yes, option one within the specified hierarchy allows us to accept a justified discharge which delivers more than ten per cent deterioration of EQS in the receiving water. This is providing the discharge is compliant with BAT and does not cause a failure of the EQS downstream of the discharge. However, in line with WFD we need to minimise the deterioration in the watercourse irrespective of the number of discharges.

3.134 Considering text on page 68, a trade body welcomed the presumption that where emissions are insignificant, emission limits corresponding to the use of BAT should not be applied routinely.

Our response: If the quantity of a substance released from an installation is insignificant the IED does not require us to set an emission limit in the permit. However, H1 defines insignificance in terms of environmental impact and so there currently is no direct correlation between IED derogations and insignificance in H1.

3.135 Referring to modelling guidance applying to TraC waters on page 80, a trade body welcomed reference to the CIS Mixing Zone Guidance. Whilst they found the use of dilution mapping helpful for substances which behave conservatively, They thought that for some substances discharged from power plant falling into the 'hazardous' substances category the use of dilution mapping could be unduly precautionary. For example, emissions resulting from the chemical control of biofouling. They requested the insertion of additional text to support the basis for modelling for permit limit setting. The modelling should include appropriate characterisation of any decay or loss processes occurring over relevant time and distance scales.

Our response: We have included a sentence in the guidance to cover this.

3.136 The provision for explanatory information being provided to water companies regarding draft permit limits were noted on page 82 by a trade body. To enable a response to draft permit limits within the 10 day period they agreed that appropriate explanatory material should be provided. However, for TraC waters, the list on page 82 was considered insufficient and they suggested the current wording should be generalised. They cited a scenario where different receptors may be limiting on different substances for the same discharge.

Our response: Text has been added to this page to cover discharges to TraC water. This states that for discharges to TraC waters, the applicant will have been involved with, and probably provided, most of the information supporting the application. The derivation of any permit limits should therefore be clear. However, if the applicant is uncertain about how a limit for a substance has been determined, clarification of this can be requested.

3.137 A trade body noticed the discussion on biota standards on page 84 appeared to predate the Directive 2013/39/EU which (despite its publication in summer 2013) gives Member States until 14th September 2015 to transpose into law. Regarding the transposition, they sought reference to the inevitable direction including Footnote 12 of the Directive (relating to the choice of biota). They noted that biota standards have been set in a wider range of substances than suggested currently including polycyclic aromatic Hydrocarbons (PAH) (including Benzo (A) Pyrene).

Our response: The consultation was launched in October 2013, after the publication of the amendments (Directive 2013/39/EU) to the Environmental Quality Standards Directive that were published in August 2013. These amendments include an increased number of substances to which biota standards apply. However, the new and revised standards in Directive 2013/39/EU will not apply until they are transposed into UK legislation. Directions to do this are not yet in place, but are expected by September 2015. The Directions are also expected to incorporate changes to UK Specific Pollutants, following UKTAG recommendations that were made in November 2013.

Once Directions are issued, further amendments to elements of annex D will be required. We will be using the updated standard for planning purposes in advance of the expected Directions.

Question 3e: Does the worked example of the new screening calculations and modelling methodology (in annex D1, appendix A) explain the process clearly? If not how could it be improved?

Summary

The worked example was generally supported, subject to a few points of clarification.

3.138 The worked example served only to illustrate the inconsistency of the 'no deterioration' policy, so said a water company. The example implied the data set applied to an existing discharge which failed the deterioration test and therefore ended with a numeric limit. And they questioned if this limit would be more stringent than measured data?

Our response: The example demonstrates that a limit would be required. Limits are discharge-specific and dependent on local circumstances such as the level of dilution provided by the receiving watercourse and existing river quality. The annex D methodology will assess whether existing discharges without limits will need to be controlled by a limit.

3.139 An industrialist noted that although the worked example generally presented a clear explanation they thought an error had been made in the calculation of the PC on page 94. Although the error did not change the conclusion they thought it may serve to confuse users who were trying to follow it through.

Our response: Thank you - this mistake has been rectified.

3.140 Another industrialist thought that whilst the worked examples on page 23 were clear, the use of parameters 'S' and 'K' without explanation rendered section six unclear. They questioned whether 'K' relates to discharge or partition coefficients?

Our response: 'K' is the SD Factor which is defined in the glossary at the end of section 6.3.1 of annex D1. When multiplied by the standard deviation of data in the HiTail and antilogged, it gives the ratio between two specific percentiles for a hazardous pollutant. 'K' is an empirically derived statistical factor for water company sewage treatment works effluent and is not related to partition coefficients.

3.141 A water company noted that on page 95 reference is made to Tests 3b and 3a and that these test should be named numerically to avoid confusion.

Our response: We have amended this in the guidance

2.4 Annex F – Odour dispersion factors

Question 4a: Do you think the screening criterion in annex F is appropriate for odour assessments or could you justify an alternative?

Summary

Respondents sought to broaden the scope of this question to include the assessment of odours in the widest sense. Having considered the points raised and suggestions made we have chosen to hold back on launching the new odour screening tool until we can confirm its role in our permitting of potentially odorous point sources.

4.1 A water company stated that processes involving septic sewage and septic sludge are indicative examples of highly offensive odours. However, they sought to operate a source of potentially highly offensive odours to a less stringent benchmark, by demonstrating that their treatment /abatement technology changed the nature of the odour and the quantity of emissions released. They cited a bio-filter, which they suggested should enable the odour benchmark to be relaxed from 1.5 OU/m^3 to 3 OU/m^3.

Our response: The odour benchmarks are based on epidemiological studies which demonstrate that there is a clear relationship between hedonic tone and the dose-response relationship[4]. If there is evidence to demonstrate that treatment through a biofilter would alter the hedonic tone of an offensive odour, then in some cases, an alternative benchmark may be considered. This would be subject to evidence provided that full treatment of all odour emissions through an optimally operating biofilter. Management to ensure its optimal performance would need to be included in an odour management plan (OMP).

4.2 It was stated by a consultant that in the first paragraph on page 22 of annex F there are some very dangerous leaps of faith from one hour mean concentrations of odours to complaint levels. Making reference to the 100 percentile of one hour means the consultant advised there could be times when an instantaneous odour concentration was many times above the defined benchmark, whilst during the remainder of the hour there was no release. Averaged over an hour the odour benchmark would not be exceeded in the local environment, but the release occurring over a matter of a few minutes could cause complaints. The response closed by advising us not to attempt to comment on what achievement of these benchmarks will or will not mean in terms of complaints.

Our response: We acknowledge in H4 that a rapidly fluctuating odour is more likely to be noticed than a steady background odour at a low concentration. And the odour screening tool, being designed as it is for assessment of continuous releases and not for instantaneous peaks, could not reflect such variation in source term. However, we will review our text in annex F relating to odour benchmarks and complaints, particularly with reference to 98 percentiles.

4.3 Expanding on the relationship between odour benchmarks and likely complaints, the consultant highlighted what was described as a misconception that if the 98 percentile one hour mean concentration is below 1OU/m^3 then it will not be detected; or

[4] EA R&D report Technical Report PR4-095/TR

that odour will only be detected in the remaining 2per cent of the year. It added “both are wrong”.

Our response: With reference to the standard method given in BSEN 13725:2003 on olfactometry it is clear that 1OUe /m^3 is the point of odour detection. In our consultation we made no reference to odour concentrations below this level. We believe that odour modelling is useful because we can associate modelled exposure levels with annoyance, which is something we would want to avoid.

4.4 The applicability of the Odour Screening tool to some aspects of the EPR activities concerned one water company. They stated their opinion that H4 does not apply to UWWTD facilities (unless they are subject to the IED/IPPC), to standalone water discharges, groundwater authorisations or any other activity which is not subject to an odour condition in a permit.

Our response: This is correct and reflects H4. We will clarify annex F to make this clear.

4.5 It was observed by a water company that Table references at the beginning of Appendix D need expanding to include Table 3.2.

Our response: Agreed, we have amended annex F post consultation.

4.6 Clarity was sought by a water company concerning the level of offensiveness that would be assigned to the outlet of odour control units. For example: 1.5, 3 or 6 OUe/m^3.

Our response: These benchmark levels are consistent with specific guidance included in Appendix 3 of our horizontal guidance note H4.

4.7 Considering that to use the Odour Screening Tool required measurement (or estimation) of the odour concentration in the point source release, one water company highlighted what it considered to be the limitations of this tool because of the need to sample hot gases on occasions.

Our response: Standard methods for the measurement of odours are included within H4 and we recommend the use of those methods, subject to their limitations.

4.8 A water company suggested that it would be sensible for the Odour Screening Tool to include a pre-screening stage to establish where it is clear that odours will have an insignificant impact, thereby avoiding the unnecessary cost of sampling to prove the case.

Our response: We would have to carry out further work to identify activities which may pass through a pre-screening stage and avoid the need for odour sampling. Coupled with a need to review some of the dispersion factors included in our consultation (because some modelling parameters have changed since the factors were developed) leads us to conclude the Odour Screening Tool should not be published until this further work is completed. In contrast, H4 Appendix three includes a list of activities which are known to be a source of odorous emissions.

4.9 There is need for clarification on the use of effective height within the Odour Screening Tool. A water company asked ‘Is the effective height for odour assessments the same as in Appendix D of annex F, or is the effective height the actual stack height as given in the worked example on page 22?’

Our response: The effective height for odour assessments is the same as given for air quality assessments in Appendix D of annex F.

4.10 A consultant stated it is not correct to assume a direct relationship between one hour mean odour impact concentrations and C98 benchmarks, as the benchmarks are based on a number of odour exposure events rather than one individual exposure.

Our response: Our screening methodology was constructed using the ADMS modelling system, incorporating a conservative approach with no plume rise within a flat terrain. Within these constraints, predictions in exceedance of the appropriate benchmark indicate the need for a detailed assessment. A detailed assessment (modelling) of odorous releases, which includes a sensitivity analysis of those factors which if varied could influence the prediction, can be used to predict the likely impact off site. Such predictions in exceedance of the appropriate benchmark indicate unacceptable pollution.

4.11 The applicability of 98 percentile of hourly average odour concentrations prompted a water company to suggest that such standards should only apply where an individual's exposure is likely to occur for prolonged periods of time, such as at a residential property. It added that 'where exposure is more transient (roads or footpaths) the direct application of such criteria should be treated with caution as the benefits of intervention could be vastly overestimated.'

Our response: We have said the 98 percentile predicted odour concentrations relate to our consideration of routine continuous releases. However, using this approach, there could still be times when the odour is detected at a level above the benchmark. This event could coincide with a person walking along a road or footpath near your installation. As the operator if you receive odorous complaints you should review your odour management plan to identify any modifications to your operations that may be necessary.

4.12 A consultant expressed the view that the odour screening tool must not refer to short term impacts against long term benchmarks. Adding they should be considered in the same way as other EALs, i.e. have a different dispersion factor, a higher significance benchmark (ten per cent) but also a higher EAL. Although they were not able to suggest what a suitable one hour EAL benchmark should be, they did think that having a long term EAL or benchmark would bring it in line with arsenic and B[a]P so this would not be unusual.

Our response: Historically, we have used occupational exposure limits (OELs) as a basis for deriving environmental assessment levels (EALs). However, we believe OELs are not suitable for determining a level of annoyance since they are derived from health-related data. And the transposition of these limits from workplace to community is not straightforward. We believe the odour benchmark levels are designed for use with the 98 percentile of hourly averages.

4.13 A trade association commented that whilst the odour screening approach being based on modelling 98 percentiles of hourly values is quite well established, it is only one of a number of approaches to assess odour impacts, none of which is foolproof.

Our response: As the trade association acknowledges we have built our odour dispersion screening tool on an established methodology. In common with all H1 assessments a pollutant release rate is required. Within the field of odour assessments the monitoring of releases, such that those results are truly representative of plant operation, are crucial to the predicted outcomes. In the wider sense the management

of odorous releases requires a holistic approach incorporating permit conditions and an odour management plan.

4.14 Two water companies found an error in the calculation of the worked example.

Our response: Agreed, if published in its current form we will correct this in the revised annex F.

4.15 It was assumed by a water company that processes which contribute the levels of odour which are given as benchmarks within annex F are listed elsewhere in the guidance, but they felt it would also be useful to list them within the Odour section in annex F.

Our response: If published in its current form we will modify annex F to give indication of the types of activity that may give rise to the categories of odours we are considering.

4.16 Considering the modelling of odorous emissions from landfill sites, a consultant suggested the odour unit (OUe) approach was not appropriate because the chemical constituents of landfill gas, which changes with time, give rise to site specific odours.

Our response: We believe that landfill gas is a complex mixture of chemicals which generally hinders the identification of individual species within landfill gas. Hence we would expect the odour unit approach to be used in the assessment of odours from landfill gas.

4.17 An industrialist observed that ‘worse case impacts are modelled for receptors beyond 100 metres using a dispersion factor associated with effective release height.’ It added that ‘these factors have been derived for worse case conditions using a commercially available model and purchased meteorological data, but no details are given.’ And a consultant stated that the ‘assumptions, input and model set-up used to derive the odour dispersion factors shown in Table 3.2 of the draft guidance should be clearly stated (in an appendix if necessary) for reasons of transparency and so that other practitioners can replicate the derivations if desired.’

Our response: Hourly sequential meteorological data was purchased from the Meteorological Office in 2008 for their 34 operating stations located across England and Wales. From that list 13 stations were selected. Five years of meteorological data from 2003 to 2007 inclusive was used. Other dispersion modelling parameters were entered into ADMS 4.1. They included a range of surface roughness values (both at the meteorological station and the dispersion site) and a variety of stack heights. Flat terrain was used. ADMS recommends terrain effects only where the gradient is greater than one in10.

The model delivered the maximum ground level concentration for a unit odour release, adjusted to give an output in odour units per cubic metre. The size of the modelling output domain was adjusted to ensure the maximum value was captured. The size of the output grid was managed subject to the AQMAU recommendations on stack height, particularly for short term assessments. Both the 98 percentile and 100 percentile of hourly averages were generated. The modelling output files were interrogated to identify the maximum ground level concentration at a minimum distance of 100 metres from the source. This was deemed consistent with the site boundary for sites which are likely to produce odorous emissions. The maximum values were then used as dispersion factors for the respective effective heights.

4.18 It was noticed by a consultant that the maximum short term dispersion factors in Table 3.2 for odour are different to the maximum 1hr mean dispersion factors in Table 3.1 and they asked why? For reasons of transparency they thought the derivation of the odour dispersion factors should be clearly stated.

Our response: Air quality dispersion factors were developed using statistical meteorological data, because at the time (2002) that was the only meteorological data we possessed. With the purchase of hourly sequential meteorological data in 2008 we have been able to increase the accuracy of our predictions. However we acknowledge that this generates some discrepancy between the two data sets. We have not updated the earlier dataset because these factors are used for screening rather than detailed modelling.

4.19 A trade association suggested that although the proposed odour screening tool uses a similar methodology to the short term air quality screening assessment, the odour screening tool should be introduced on a trial basis only. They added that during the trial the tool should be validated against the incidence of complaints or some other monitoring criterion. And that recognised approaches for detailed assessment of routine and incident related odour releases should also be identified.

Our response: The dispersion model we used to generate these factors has been subject to validation as part of its development. However some of the modelling parameters we used may have changed which would affect the value of our dispersion parameters. So we need to review the generation of these parameters before we publish them for use in screening activities.

4.20 Developing the point further, the trade association suggested that experience should be developed in the use of the odour screening tool for point sources before its application to other sources.

Our response: We support this view. Once developed further the Odour Screening tool will be limited to point source releases.

4.21 One water company sought guidance on when the new Odour Screening Tool should be used. They asked if it was mandatory for screening.

Our response: We are refraining from publishing the tool until such time as further work is completed. Hence the tool will not be available for use in the immediate future. It is not until new guidance is published which contains the tool that we would require its use in permit applications.

4.22 Additionally, the water company asked should the Odour Screening tool be used with pressure relief systems. They suggested that previously they had used a qualitative, risk-based assessment approach to evaluate if detailed odour assessment is required, which in most cases was deemed sufficient, but they do not say by whom.

Our response: The tool requires input of a quantified odour release rate and this may not be possible for pressure relief systems. If the release can be quantified the 100 percentile dispersion factor could be used to produce a conservative estimate of the predicted odour concentration at ground level.

4.23 Noting that screening with 98 percentiles could result in up to 175 hours when the benchmark could be exceeded, a trade association suggested that using the 100 percentiles provided a greater level of confidence in avoiding complaints.

Our response: We agree, subject to the validity of the sampling regime used to determine the odour release rate.

Question 4b: Would you like to see Odour Dispersion Factors provided for other aspects of EPR regulation in addition to point sources? If so, please explain why.

Summary

Responses focused on broadening the scope of odour dispersion factors to include area and volume sources.

4.24 A number of respondents suggested that odour dispersion factors for non-point sources would be useful. A water company declared the majority of emissions from their conditioning sites were from diffuse sources, and their sewage treatment sites where the majority of emissions arise from open tanks and channels which have large surface areas.

Our response: We acknowledge this suggestion as an area for future development. However, the variability in the release of odours from these sources and the degree to which we currently may quantify their release makes the development of dispersion factors for such sources unlikely in the short term.

4.25 A trade association noted that there does not appear to be a screening capability for area and volume sources which it felt are often more of a concern for odour impacts.

Our response: Use of the Odour Screening tool requires the inputting of a source term, either through measurement or estimation. Hence the opportunities for using the tool with non-point sources appear limited.

2.5 The revised Annex K (2013)

Question 5a: Does the revised document still work for what we previously would have called 'BAT assessments'? If not, please tell us where improvements are needed.

Summary

Responses were received from UK trade associations representing the refineries, chemicals and power generation sectors. Responses referred to the content and presentation of annex K and the need for a BAT assessment and construction of a derogation request within the same document. The economic aspects of derogations were highlighted and concern was raised at our proposed use of the Treasury's Green Book with its associated discount rates.

5.1 A Water company welcomed the opportunity for operators to put forward cases for derogation from BAT. Particularly where they thought the BREF was designed for a different industry and a 'closest fit' approach was not appropriate. They cited the example of the Total VOC benchmark value in Landfill Gas Technical Guidance Note 08 (LFTGN08), where a limit of 1000mg/m^3 is quoted. But they suggested its relevance to CHP engines combusting biogas should first be subjected to research before being implemented in permitting.

Our response: We anticipate a Waste Water Treatment BREF being published in 2017.So water companies should provide evidence to influence the content of the BREF during its development. The UK Representative on each BREF is available on request from the Head of Industrial Pollution Control at DEFRA.

5.2 When calculating costs associated with:

- an operation,
- site preparation, and
- decommissioning of an activity

(where the operator is applying for derogation), a water company expressed their understanding that this information should be calculated and submitted for each option being considered. If submitted by the operator they asked on what basis we will perform the comparison to costs in considering the case for derogation.

Our response: The IED permit review process is triggered by us issuing a Regulation 60 Notice to permit holders. If the operator's response identifies BAT AELs with which they cannot comply, then we will seek supporting information in considering the case for derogation. The basis on which derogation may be sought is given in annex K. It is the operator's duty to demonstrate that achieving the BAT AEL will result in disproportionately high costs for the operator compared to other installations across the sector. We have piloted a methodology for assessing derogation requests during 2014. We have made changes to annex K to make the factors being considered in the assessment clearer.

5.3 A trade association suggested it would be misleading to publish a revised version of annex K before an agreed methodology was developed. The methodology should explain how we would determine the case for derogation.

Our response: We piloted a methodology for assessing derogation requests during 2014. It is necessary to provide guidance to applicants that need to make derogation requests as soon as we are able. Annex K has been updated to reflect feedback from this pilot and operators.

5.4 In “Making the case for derogation” a water company stated that due to the size of their business they operate a cost model for valuing purposes. They suggested it would improve the process if ‘cost model valuations’ were accepted as a suitable alternative to explicit quotations from equipment suppliers.

Our response: Cost model valuations will be accepted, but the variability of the capex and opex (e.g. showing the respective percentile) will have to be provided. It should show the likely variation of costs at the plant which is the subject of the derogation application.

5.5 Public Health officials in England asked that we provide assurance that the process of granting any BAT - AEL derogation appropriately considers the potential impact on public health.

Our response: In making a case for derogation the operator will be required to provide an assessment of the impact, both short and long term, of operating their plant:

- in accordance with the BAT Conclusions, and
- at some lesser standard which is the subject of their derogation.

They will need to consider possible impacts on human health when demonstrating that the cost of achieving the BAT AEL is disproportionate to the benefits. No permits will be issued where the emissions from the installation cause significant pollution.

5.6 A trade association made a series of comments on the content and presentation of annex K and these are listed below:

Page three – Issue 2.0 is dated December 2011, but this is given as August 2011 in the Consultation document Summary Table.

Page four, first bullet – the guidance refers to ‘a BAT which is not that prescribed by the BAT conclusions’. BAT conclusions documents do not prescribe any particular technique or specific technology (see, for example, page two of the BAT conclusions document for Iron and Steel production, where it is stated that “The techniques listed and described in these BAT conclusions are neither prescriptive nor exhaustive”).

Page four, third bullet – the guidance refers to “a later date than set out in the BAT Conclusions”. BAT conclusions documents do not set out timescales for compliance; the timescales come from IED Article 21(3) and are relative to the publication date of the BAT conclusions document. This bullet point should be revised.

Page four, last line before bullet points at the bottom of the page – the word “therefore” is misspelled.

Page four, penultimate bullet – the guidance refers to “the total cost of complying with the BAT AEL or EQS”. This is the only reference in the document to an EQS and should be removed unless additional text is included to describe how compliance with an EQS (bearing in mind that in most cases the installation under consideration will

only contribute a proportion of the overall ambient concentrations) should be taken into account.

Our response: Our current guidance is limited to cases of derogation where the BAT AEL relates to air emissions. We are hopeful of extending our guidance to include discharges and their relationship to an EQS in a later development of our derogation methodology.

Page five, last paragraph there is an apostrophe missing from the word “projects”.

Page five last paragraph – the guidance quotes the Treasury’s Green Book as stating that “costs and benefits should be expressed in ‘real’ terms as opposite to the ‘normal’ ones.” This is derived from paragraph 5.42 of the Green Book, but it would be clearer to use the alternative language from that paragraph and rewrite this as “costs and benefits should be expressed in today’s prices as opposed to future prices.”

Page six, paragraph beginning “Direct costs tend to..” What is the relevance in the last sentence of quoting DECC guidance on the future costs of energy generation? This is not the same as the future cost of purchasing energy. The guidance may be directly relevant to the energy generation sector, but is not generally applicable to other users of annex K. If there is a specific element of the DECC guidance that is relevant to all users of annex K, this should be highlighted – if not the reference should be removed.

Pages six & seven. On page six, one sentence reads “Present your capital costs as in Table one in Appendix one” and another reads “Operating costs should be presented as in Table two in Appendix one”, this implies these forms are compulsory. The first paragraph on page seven concludes with “The templates given in Appendix one can help you do this and are based on a general format but you may use a format more appropriate for your sector if you wish”, so clearly these Tables are not compulsory. The two sentences on page six should be removed or revised.

Our response: H1 is a guidance document to assist operators in making an application for a permit. As guidance it needs to balance the varying needs of operators, some of which prefer specific instructions on how to best present information.

Page seven, first paragraph – the guidance suggests that cost data included in the relevant BREF should be used to support a case that costs for a particular installation would be higher than for a typical installation within the sector. In many instances, cost data is either missing or the basis for any data included is unclear. It should be recognised that the ideal of comparing to cost data from the BREF will not always be possible.

Our response: Cost data within the BREF will be the starting point for our consideration of the operator’s proposals. Their disproportionately high costs of meeting the new standard should be compared to the benefits of operating at the new standard. Their explanation of disproportionately high costs will then be compared to other installations in the sector. If the BREF is weak on this point we will consider the information supplied by the operator on a case by case basis with reference to any other relevant data.

Page seven, last paragraph – issue 2.0 of annex K quoted an indicative range of six – 12 per cent for the discount rate. The range has been removed from the October 2013 version, and so the phrase “especially if it is above this range” (copied from the previous version) is now meaningless. Either this phrase should also be removed, or the indicative range restored.

Our response: We are working to the Treasury's Green Book and so the phrase will be removed.

Page seven, last paragraph – the word "Treasury" is misspelled.

Page seven, last paragraph – it is stated that the appropriate discount rate "would usually reflect the cost of capital", but it is then recommended that the Treasury's Green Book is used for guidance regarding appropriate discount rates.

The Green Book relates to appraisal of the costs and benefits of spending public funds by Government departments and executive agencies. The discount rate in this case is based on social time preference – i.e. the general preference to receive benefits now, rather than later (see paragraphs 5.48 and 5.49 of the Green Book).

The detailed derivation of the recommended discount rate of 3.5 per cent is set out in annex six of the Green Book. It is based on comparing "utility" at different points in time across generations and involves perceived risk of future catastrophe, individuals' pure time preference, growth per capita consumption and the elasticity of marginal utility of consumption. The calculated Social Time Preference Rate is conceptual, rather than a reflection of real costs of capital.

The revised annex K guidance is intended for operators of industrial processes falling within the scope of the IED, and it is thus unlikely that public funds will be involved. The sources of funds for commercial enterprises will be different from those available to the Government, and costs will be determined by market forces, including the perception of risk in different industrial sectors and for different enterprises. This is fundamentally different to the conceptual Social Time Preference Rate recommended in the Green Book. It is highly unlikely that the real cost of capital for commercial enterprises would be as low as 3.5 per cent.

One of the earlier references in annex K is to a DECC report on Electricity Generation Costs, published in July 2013; this uses a discount rate of ten per cent, which is inconsistent with the discount rate in the Green Book, but presumably reflects a realistic view of the cost of capital to the electricity generation sector.

If the discount rate is to reflect the real costs of capital borne by commercial enterprises, then reference to the Treasury's Green Book is misleading and this should be removed.

Our response: We will assess derogation requests from the BAT AELs on the basis set out in Article 15(4) of the IED[5]. We will use HM Treasury's Green Book (HMTGB) discount rate (i.e. 3.5 per cent up to year 30) to discount the costs and benefits submitted by an operator in support of their request for derogation. If the operator's weighted average cost of capital is higher than HMT's GB discount rate, the cost of accessing finance should be added to the analysis as a stream of annual payments. They will be then discounted using HMT's GB discount rate.

Page nine, first paragraph – the guidance refers to the Environment Agency's H1 software tool and the insignificance tests included within it. It does not suggest how a finding that a particular emission may be found to have an insignificant impact should

[5] 2010/75/EU

be taken into account in the context of a derogation application. Should it be the case that if the environmental impact of a particular emission is found to be insignificant, using the methodologies in the H1 annexes D and F, then no further abatement is required, even if the emission does not comply with a BAT AEL? It could be considered if all the impacts are insignificant, then any cost-benefit analysis should conclude that the benefits of the scheme are also insignificant. Therefore an application for derogation in the case where the environmental impacts of the current non-BAT compliant emissions are insignificant could be deemed to be valid even without detailed cost data and cost-benefit analysis.

Our response: If the quantity of a substance released from the installation is insignificant, the IED does not require us to set an emission limit in the permit. (Insignificance refers to the sum of releases of each pollutant from each point source, not just a single point release). In such cases we may not need to consider granting derogation from a BAT AEL for that substance. It is also a requirement of the Directive that pollution is prevented consistent with the application of BAT. So, even if the release was described as insignificant, operating in a manner consistent with BAT would remain a requirement. We will provide more clarity on the relationship between insignificance and derogation requests in a future version of annex K.

Page nine, second paragraph – the word “it” (sixth word in the first sentence) should be removed.

Page nine, last paragraph – what is the relevance of indicating past environmental expenditure in making a case for derogation? How will this information be taken into account in determining whether an application for derogation will be granted? Is this equivalent to paragraph 4.41 of DEFRA’s guidance on Part A installations and IED (referenced on page 10), which states that “the recent history of pollution control investment in the installation in respect of the pollutant(s) for which the derogation is sought” is a relevant technical characteristic? If so, is it necessary to repeat it?

Our response: Yes this is equivalent to paragraph 4.41 of DEFRA’s guidance[6]. In considering a case for derogation it would be perverse to reward low levels of past investment. Previous low investment would make it more costly, and therefore easier, to justify not meeting the BAT AEL in the future. We will consider whether it is necessary to repeat it.

Page 10, first paragraph – the word “technical” is misspelled.

Page 10, first paragraph – the guidance referenced is a draft version and the link should be replaced with one to the final version of the guidance -

> https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221044/pb13898-epr-guidance-part-a-130222.pdf

Our response: Agreed we will update the link.

Page 10, second paragraph – the reference to “an environmental damage costs approach as set out in the supplementary guide to the Green Book“ signposts air quality damage costs from the IGCB on the DEFRA web site. These are not the only set of damage costs available and it may be misleading to direct the user to that

[6] Industrial emissions Directive EPR Guidance on Part A installations. February 2013

particular set of damage costs if they are not those that will be used by the Environment Agency in determining the validity of an application for derogation.

Our response: The rewritten annex K will use a basket of measures and damage costs-generated by reference to the IGCB-will be one of those measures. When compiling their case we would expect operators to carry out a sensitivity analysis that highlights those inputs which influence the outcome most significantly.

Page 10, second paragraph – damage costs are not generally available for water pollution, and nor does the COMEAP approach apply to water quality. The Cross-Media BREF also focuses on the assessment of air pollution, rather than water pollution – the only relevant methodology in the BREF (page 1eight) can be used to compare one option with another, but not to undertake an absolute cost-benefit analysis. Some guidance is needed to guide applicants in assessing the cost-benefit analysis for discharges to water.

Our response: We aim to improve guidance on dealing with discharges to water within future releases of annex K.

5.7 The UK refineries trade association highlighted the publishing date for the Refinery BREF as mid-2014. They added that the refining sector may face a significant challenge to achieve compliance with lower emission limits within the four-year period if these were subject to significant revision on permit review. They added that refineries operate continuously for long periods and undergo periodic shutdowns (or turnarounds) only for inspection or maintenance purposes, often to meet requirements under the major hazards regulatory regime (COMAH). Most operators operate a five -10 year planning cycle for these turnarounds which, for larger, more complex refineries, involve only partial shutdown of the refinery to ensure continuity of supply. Costs of these turnarounds were expressed in excess of $100m. They then went on to say that the four-year timescale may be unmanageable where investment in new abatement technology is required to meet revised emission limits for several reasons:

- Major projects typically take three to four years from design to commissioning. If permit revision for UK refineries was to take place in 2015 this would not provide sufficient time to design and build major environmental projects which are currently unbudgeted.
- Turnaround planning within the 2014-201eight timeframe has already been initiated and any additional requirements arising from revision of permit conditions may be difficult to accommodate, especially if the units concerned are not due for turnaround during this period.
- With all 92 operating European refineries facing similar requirements, there is likely to be insufficient capacity in the engineering and construction contracting industries in the short timeframe.
- Even if there were sufficient design contractors available, there are not enough skilled refinery personnel to develop and manage multiple major projects in such a short time. The refineries must also continue to develop safety projects arising from regulatory activities carried out by the joint COMAH competent authority. At the same time projects may be required to meet new product quality requirements (lower sulphur or benzene content) and to ensure they remain competitive through investment in improvement projects.

With these issues in mind the refineries trade association proposed a series of revisions to annex K:

- Recognition of the possibility for derogation to align investment in additional emissions abatement with turnaround planning cycles to avoid compromising supply and supply resilience.

Our response: Operators within the refinery sector have four years to comply with the emission limits associated with the BAT AELs. These are contained within the BAT Conclusions published by the European Commission. If refinery operators need more time they have the option of making a case for a time-limited derogation as laid down in the IED. They should demonstrate that compliance within four years would result in disproportionately high costs compared to the benefits whereas compliance at a later date would not.

- The inclusion of downtime costs in calculation of the total cost of complying with the BAT AEL or EQS.

Our response: Yes, we think it is reasonable for downtime costs to be included within the costs associated with complying with the BAT AEL.

- Acknowledgement of the constraints in achieving compliance with revised BAT-conclusions due to the limited capacity in the engineering and construction contracting industries and limited operator project management resources.

Our response: See response to question immediately above this one.

- Require use of damage costs indentified in the HM Treasury Supplementary Green Book Guidance[7], which is not explicit in the current text in the section "Comparing costs and benefits".

Our response: Annex K has been rewritten and now includes reference to damage costs.

5.8 A trade association expressed the view that the assessment for cost benefit analysis was incomplete because it does not consider the environmental impact element described within Article 14.4 of the Directive. They added "We suggest you include BPEO from IPC as an example".

Our response: Article 14(4) refers to the setting of permit conditions that are stricter than BAT. It refers to the Member State establishing rules under which those conditions may be applied by the regulator. DEFRA has published its own guidance in which reference is made specifically to Article 18 and the setting of ELVs where that applies[8]. Reference to this DEFRA publication is now included within annex D.

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[7] *Valuing impacts on air quality: Supplementary Green Book guidance*, HM Treasury, 2013, available at: https://www.gov.uk/government/publications/green-book-supplementary-guidance-air-quality .

[8] Industrial Emissions Directive EPR Guidance on Part A installations. February 2013 DEFRA, available via www.DEFRA.gov.uk

5.9 Another trade association thought the revised annex K focused on derogations and in effect assumed all BAT assessments were identical. Since the number of BAT assessments would be greater than the number of derogation assessments the emphasis of the document should change to reflect this. The title of the document should refer to both.

Our response: Annex K has been rewritten to include BAT assessments together with making a case for derogation from the BAT AELs and the title has changed to reflect this.

5.10 Going further, the trade association suggested that operators could not know what they were derogating from if they had not carried out a BAT assessment. They suggested that the revised annex K needs to be expanded to include all BAT assessments if it was to replace the existing version.

Our response: Agreed. Annex K now includes BAT assessments together with guidance on making a case for derogation from the BAT AELs.

5.11 It was observed by a trade association that annex K does not define what constitutes compliance with IED. They asked is it sufficient to propose an emission limit value (ELV) within the range of BREF AELs to avoid the need for derogation?

Our response: Where a range of BAT AELs is proposed then it would be acceptable for an operator to propose operating an emission limit value (ELV) within the published range.

5.12 Considering the range of BAT AELs available with given techniques within the Iron and Steel BREF, a trade association asked is there a distinction between compliance with the top of a BREF AEL range and compliance with the bottom of the BREF range?

Our response: See previous response.

5.13 Looking at the range of techniques and BAT AELs in the BREF, a trade association asked is it necessary to fit all the techniques listed in the BAT Conclusions or is compliance with the ELV sufficient?

Our response: The BAT Conclusions are not prescriptive and an operator may choose to adopt an alternative technique, or combination of techniques, providing the same level of environmental protection is delivered as specified in the BAT Conclusions.

5.14 Noting the draft Large Combustion Plant BREF defines BAT AELs for base load plant and not for lower load plant, a trade association asked should ‘lower load’ plant apply for derogation from BREF AELs. Such plants are expected to adopt the requirements of the Transitional National Plan, Limited Life Derogation or the Limited Running Derogation and comply with less stringent emission limits.

Our response: The European Commission has declared that for combustion plants benefitting from the time-limited and specific derogation provisions of Articles 32 to 35, Article 15(3) do not apply for certain air pollutants. And these plants are not required, for those air pollutants, to comply in addition with the conditions for the derogation set out in Article 15(4). Combustion plants which do not benefit from specific and time limited derogations pursuant to the Articles 32 to 35 are obliged to meet the requirements as set out in Article 15(3). However the national authorities may in certain cases, and if all conditions set out there are met, grant derogation according to Article 15(4). We note that Article 18 is applicable under all derogation regimes.

5.15 It was observed by a trade association that annex K implies the procedure for a BAT assessment is the same as a derogation assessment and there is no highlighting of any differences. They asked if the following apply to BAT assessments:

- In a BAT assessment all options will comply with BAT AELs contrary to the information list on page four.

Our response: Agreed.

- Is it necessary to provide cost data if the proposed option is the best option in terms of environmental impact?

Our response: No.

- Is it necessary to provide data on costs incurred over the last five years in improving the operational performance and environmental impact of the activity?

Our response: Not if the operator proposes to comply with BAT and the associated emission limit(s).

5.16 A trade association suggested that annex K implies there is a single BAT AEL option. However, the BREF lists a number of BAT techniques that can be used in combination and specifies AEL ranges rather than single values. Hence different combinations may achieve different AELs, all within the acceptable range. In a BAT appraisal there will be no non-BAT AEL option, hence the appraisal will be between options which all comply with BAT AELs. As a result there may be multiple options each with their own emission level within the BREF range.

Our response: This is acknowledged. The operator should justify their chosen options.

5.17 It was noticed by a trade association that version 2.0 of annex K considered a wider range of environmental impacts (summarised within the now deleted Table 2.1) than the lists now presented on page four and five of version 2.1. Although the following impacts are mentioned:

- Environmental concentrations (assumed to be air and water)
- Long term and short term releases
- Comparison with MACs and Environmental Assessment Levels (EALs)
- Annual mass release

Deposition, noise, accidents, visual, odour, Global Warming Potential and waste are missing. Version 2.0 advocated the use of PC/EAL for assessing impacts although this is barely mentioned in the new draft. The software tool lists these impacts, raising an issue of consistency between the tool and the guidance. So, should impacts be based on the new draft or the version 2.0 of annex K?

Our response: Annex K has been rewritten to capture the requirements for constructing a BAT assessment and a case for derogation. There will be non-monetised benefits that we will consider in coming to a decision on a case made in support of derogation. However, the cost benefit analysis will be of primary importance.

5.18 A trade association noted on page five of the new annex K the need to take account of changes in production capacity when deriving the cost of an option. They added the document fails to note the importance of defining the basis on which options

are compared. They cited bases where all options have the same fuel consumption or the same production rate. However, the BREF defines BAT in terms of abatement techniques, AELs (mg/m^3) and energy efficiency. They noted that these are defined for capacity ranges which led them to conclude that emission reductions arising only from reduced production should not be considered in the BAT appraisal.

Our response: Following clarification with representatives of the Joint Environmental Programme, it has been explained the combustion of biomass on power stations that historically have burned coal was the subject matter behind this query. At the Environment Agency we understand that discussions are ongoing with the European Commission regarding the inclusion of BAT AELs for releases to air of pollutants resulting from the combustion of biomass on converted coal fired power stations. Once the BAT Conclusions for large combustion plant are published, we will initiate a permit review and seek a response from operators to ask if they can comply with the BAT AELs within the BAT Conclusions document. Where operators decide they cannot comply then a case for derogation would be required and we would consider that request in the normal way.

5.19 References to external data sources for the future cost of electricity generation prompted a trade association to conclude that this section of the new annex K appears to focus on the variable cost arising from electricity consumed by operators. They noted the references quote levelised £/kWh for specific new build technologies and so would have little relevance to consumption from the public supply. They suggested the data required for a BAT assessment would be:

- Price of electricity consumed from the public distribution system, i.e. what an operator pays.
- Price of electricity consumed from own generation and this could be:
- The sale price of electricity sales if the plant sells electricity, or
- The cost of generation if it does not.

Therefore the data would probably be the marginal cost of electricity, i.e. the cost of an increase in consumption rather than the cost of building a new power station.

Our response: We agree.

5.20 It was noted by a trade association on page six that the list of Indirect or 'fixed' annual costs includes categories such as overheads, administrative charges, insurance and business rates. They suggested that options appraised may be limited to specific parts of the installation (abatement systems) and as such some of these fixed costs would not then apply.

Our response: We agree, unless the installation of the new abatement system has an impact on the fixed annual cost.

5.21 Highlighting the underlined text at the top of page seven of the consultation annex K, a trade association suggested operators will have an understanding of the costs of their own plant and reasons for any high or low costs. However, they suggested that cost data published in consultant's reports or in the BREF are not usually of sufficient transparency to enable any disparity with their own site to be explained. They concluded an operator should be left to justify their own costs rather than explain the BREF costs.

Our response: In annex K page seven we say “you need to state clearly why these costs are higher than would be borne by typical industries making reference to any cost data in the BREF.” This may vary from one sector to another.

5.22 Calculation of annualised costs in Table three of the consultation annex K prompted a trade association to highlight the inconsistencies with the text on page five, which refers to costs as they are expected to occur for each year of the project’s life. Hence the approach in Table three and in the software tool may not apply. However, they were content that calculations for time varying costs could be performed using spreadsheets with built-in net present value (NPV) functions.

Our response: In its current form the software tool determines annualised costs across the life of the investment. In our consultation we said that the net present value should be determined in expressing the costing data associated with the case for derogation. Hence the software tool will have to change.

5.23 Considering the cost of capital and discount rates, a trade association observed the reference within annex K to the approach set out in the Treasury’s Green Book. They noted this recommends use of the Social Time Preference Rate (STPR), which they thought bore little relation to the cost of capital. They suggested the STPR appears to be related to gross domestic product (GDP) plus a contribution of various risk factors.

Our response: We will use HM Treasury’s Green Book discount rate as the basis for discounting the benefits and costs associated with requests for derogation from the BAT AELs. If the operator’s weighted average cost of capital is higher than HMTGB discount rate, their cost of accessing finance should be added as annual payments. These should then be discounted using HMT’s GB discount rate.

5.24 Reflecting on the need for operators to report annual emissions in comparison with Pollution Inventory reporting thresholds, a trade association asked was this for informational purposes or would conclusions be drawn from this? And they added are emissions below reporting thresholds deemed negligible or insignificant?

Our response: We have not defined our position on mass releases and insignificance. For now we will limit our definition of insignificance to that described within annex F (air emissions) and annex D1 (surface water discharges).

5.25 Monetisation of benefits of environmental improvements using an environmental damage costs approach prompted operators of fossil-fuelled power stations to claim that the monetary valuation of the damage costs of sulphur dioxide and nitrogen oxides is extremely uncertain and, as a result, the range of plausible values is wide. Citing the formation of secondary particles and what they described as ‘a minimal ability to cause oxidative stress and inflammation’, they claimed the damage cost range for these emissions would be lower than the current range of published data. Hence, given the current state of knowledge, it was not appropriate to directly apply damage cost estimates for sulphur dioxide and nitrogen oxides in the economic assessment of plant abatement modifications.

Our response: The central estimate of the air quality damage costs[9] is the value which is central in our assessments of impacts on air quality. The central estimate has been derived from the central range, which is not a wide range, unlike the sensitivities range.

HMT's GB damage cost value for the PMs have been derived specifically for each of the main sectors known to contribute to PMs in the environment. The PM damage cost value for power station emissions is the lowest across all the sectors. Damage cost estimates are one in a basket of measures we will use in coming to a decision on a case for derogation. If operators can justify the use of alternate damage costs then we will consider them.

5.26 Commenting on the monetary valuation option in the last paragraph of the section on "Comparing costs and benefits" on page ten, a trade association suggested the methodology was immature and subject to a high degree of uncertainty due to the wide range of estimates of damage costs, and this should be recognised.

Our response: Please see our response to query 5.25.

5.27 Reflecting on the need for operators to supply quotations from equipment suppliers in support of costs associated with a case for derogation, a trade association suggested this would be difficult for two reasons:

- Cost estimates used in the application may be an average or range based on more than one quotation; and
- Quotations are often provided on a commercially-in-confidence basis by the contractor (i.e. they do not want other contractors to know their prices).

Our response: The onus is on the operators to provide cost data in support of their request for derogation, without it the regulator would have difficulty supporting the request.

5.28 It was suggested by a trade association that costs can be normalised by expressing them as a cost per unit of output or per unit of pollutant abated. Highlighting the fact that reference to cost ratios, such as £/tonne or £/unit EQ (environmental quotient) were previously in version 2.0 of annex K and now are removed, they commented such ratios are useful for comparing the cost effectiveness of options and should be retained.

Our response: Rather than continue to use the 'environmental quotient' we now see the Cross Media BREF[10] as the way forward when expressing such effects. This document identifies seven environmental themes that may be used to consider the impact of a proposal on the environment taken as a whole. Although such ratios are useful for evaluating the cost effectiveness of single pollutant abatement options, the IED frames the test in terms of cost and benefit.

5.29 A trade association noticed the discussion of possible reasons for the preliminary screening of technical options on the basis of applicability or availability had been omitted from annex K. Without reference to the BREF or EPR 1.1 and no discussion of

[9] HM Treasury's Green Book supplementary guidance on air quality
[10] Economics & Cross Media Effects European Commission July 2006

possible reasons for the preliminary screening out of technical options they thought this supported the view that only two options should be considered.

Our response: Agreed, we need to provide greater clarity on possible reasons for the preliminary screening of technical options.

5.30 It was argued by a trade association that installation-specific technical characteristics can include the remaining operating lifetime of the plant and the average level of operation. They suggested that such detail can provide guidance on wider factors, such as the market conditions in which the installation operates, and that these factors should be taken into account in determining the availability of a technique.

Our response: DEFRA guidance on setting ELVs where Article 15(3) applies makes clear that the requirements of Article 15(3) apply only where BAT Conclusions have:

- been adopted and published by the European Commission under Articles 15(3) and (6), and
- those Conclusions contain BAT – associated emission levels (AELs).

In relation to Article 15(4), paragraph 4.41 of the DEFRA guidance[11] includes technical characteristics that may be relevant. They include:

- the recent history of pollution control investment in the installation in respect of the pollutant(s) for which the derogation is sought,
- the general investment cycle for a particular type of installation,
- the configuration of the plant on a given site, making it more technically difficult and costly to comply,
- the practicability (particularly bearing in mind Health & Safety and other relevant legal obligations) of interrupting the activity so as to install improved emission control upon the pollutant(s),
- the effect of reducing the excess emission(s) upon other pollutant emissions, energy efficiency, water use or waste arising from the installation as a whole; and
- the intended remaining operational lifetime of the installation as a whole or of the part of it giving rise to the emission of the pollutant(s), where the operator is prepared to commit to a timescale for closure.

So in conclusion, yes there are wider aspects that should be considered.

5.31 It was noted by a trade association that version 2.0 of annex K considered the case of the Best Environmental Option (BEO), and when proposed it removed the need for costs to be considered. However, in the new annex K BEO is absent which implies that cost assessments are required in all cases.

Our response: Annex K has been rewritten. Costs should be included when the operator is:

[11] Industrial emissions Directive EPR Guidance on Part A installations. February 2013

- identifying BAT from a series of options, and
- making the case for derogation from the BAT AEL.

5.32 A trade association noticed the guidance on resolving cross media conflicts had been omitted from version 2.1 of annex K. They added that the new version avoids calculation of the PC for TraC waters, so there is no means to assess PC/EQS for aqueous discharges in the tool. Should the relative impacts of air and water continue to be assessed in this way?

Our response: Please see our response to 5.28.

5.33 Commenting on the content of Appendix one, Table one in the consultation annex K, a trade association thought the detailed breakdown of costs far exceeded anything that would be available in the preliminary design stage of a plant modification, when a BAT application would be made. From experience they suggested the most likely costs available would be capital costs of major plant items, additional energy costs, additional maintenance and raw material consumption costs.

Our response: We will take account of this comment when redrafting annex K and our cost and benefits analysis tool.

5.34 Omission of Life Cycle Analysis from the new version of annex K prompted a trade association to suggest this was a 'significant deletion'.

Our response: We are limiting our considerations to activities within the installation boundary and so Life Cycle Analysis will not be reintroduced into the rewritten annex K.

5.35 It was contested by a trade body that where comparisons are made between a range of BAT options, use of annex K to justify a final choice would be onerous & excessive, indeed unnecessary in most cases. Much simpler justification could be made reducing the costs in time & effort.

Our response: Version 2.0 of annex K provided a simple means of enabling the operator to justify BAT from a series of options. The operator may choose an alternative technique which is consistent with BAT and the submission will be judged on its merits.

Question 5b: Do you support the view that the life span of some major plant items may be greater than those in Table 5? If so, please provide any evidence of plant operating for longer periods than given in this table?

Summary

Evidence suggests the timescales in annex K should be extended.

5.36 Details provided by members of the United Kingdom Petroleum Industries Association indicated the following:

Buildings: 30 years

Major components (reactors, furnaces, boilers, turbines, ETP's): up to 40 years

Intermediate components (heat exchangers, filters, handling equipment) can be over 20 years

Minor components (motors, drives, burners) can be 10 years or more.

Our response: These examples extend the current timeframes in annex K.

5.37 A trade association suggested the lifetime of new build combustion plant may be 30 years or more so 15 years looks low. But plant may be life limited by legislation, for example the Transitional National Plan or Limited Life Derogation in the IED.

Our response: Further evidence in support of extending plant life timescales.

5.38 A trade body suggested that paper mills with effluent treatment plants operate well in excess of 20 years.

Our response: These specific paper sector lifetimes are noted.

2.6 Changes to the H1 Software Tool

Question 6a: Do you support these changes? Are there other areas where you think improvements should be made?

Summary

Responses focused on the operation of the modified software tool and in some cases highlighted areas for improvement in its functionality.

6.1 One respondent requested a worked example of an H1 assessment with the proposed changes in place.

Our response: It is our intention to make available a new cost and benefits analysis tool which will be accompanied by a new user guide. This takes the form of a spreadsheet. It should enable users to use the CBA tool to support their assessment of the costs and benefits associated with their claim for derogation from the BAT AELs.

6.2 A water company user thought it was not clear what data should be entered on the Water Emissions Inventory page. They were not sure if the concentration data were those of the substance in the effluent and there is no steer from the table headers.

Our response: On the Water Emissions Inventory page we have titled the page "Release concentrations of substances present in discharges to water". This confirms we are looking for details of the substances within the effluent stream.

6.3 A request from a water company user for us to be clear just what the tool will calculate automatically and where data should be entered into the tool.

Our response: Generally speaking data should be entered into the blue cells, but we will take account of any discrepancies in our revision of the User Guide.

6.4 A water company user spotted a reference to annex D Appendix B when there are no 'A's and 'B's in annex D only 1's, 2's and 3's.

Our response: We will modify cross references where necessary.

6.5 Printing problems were highlighted by a consultant. They found when printing the initial 'Welcome' page that six pages were printed when only one is needed. And when the H1 assessment is produced as a PDF document it requires an additional amount of formatting to remove these unnecessary pages.

Our response: We introduced a new printing element to the functionality of version 2.72 of the software tool. In the 'Summary Tables' page before the graphs in Step three we have added the option 'Export to Excel'. This enables the user to export all input and tool output data to a spreadsheet which can then be saved and/or printed off as necessary.

6.6 When using the tool in Microsoft Access 2003 an industrial user found errors in the EQS values for TraC water assessments. Specifically, if the water discharge location is selected as a discharge to coastal waters the tool assesses Step one against the Inland waters EQS rather than the salt water EQS. Although the salt water EQS is used in TraC water EQF Test five.

Our response: This observation is correct we intend to correct these errors.

6.7 Going further the industrialist found that if a discharge to water has been assessed and subsequently the effluent flow rate in the page headed 'Water Release Point' is changed, this change is not reflected in the calculation of significant loads of PHSs in the sheet headed 'Water Impacts Test one - TraC'.

Our response: Again this observation is correct and is something we will need to review.

6.8 One water company advised us that because of the Software Tool delays between the launch of the Hazardous Pollutants OI and the new tool they had developed their own spreadsheet and intended to use that.

Our response: We will check the assessment once received in support of a permit application.

6.9 An industrial trade association advised us that we may need to change the Excel Object Library 12 to 11 under the reference section to enable the tool to work with Microsoft Access 2003.

Our response: This advice is appreciated and we have provided means of undertaking this modification when operators have requested it.

6.10 The industrialist added that the Software tool generated the wrong EQS for TraC for As, for Cr VI, for Cd<40 and for Cu 0-50.

Our response: We agree with this observation and will review before releasing the tool.

6.11 A trade body asked how H1 should be used with sectors where the impact is based less on hazardous pollutants and more on BOD/COD, suspended solids, where there are no comparators.

Our response: H1 does not provide a screening mechanism for 'sanitary pollutants' such as listed here. Such discharges should be assessed using modelling to determine their impact on the receiving water. Guidance is provided in annex D2.

Question 6b: Looking at the H1 software tool ‘Page help’ and ‘Box help’ are there any areas where you think the support and guidance could be improved?

Summary

There were two comments received to this particular question and each focuses on specific areas of support.

6.12 A water company suggested the help box is very brief and provides no help other than refer the user to guidance documents. Additional comments should be added to this.

Our response: This comment is noted.

6.13 A consultant made the assumption that the hyperlink to the 'Horizontal guidance' webpage on the Environment Agency website provided in the Help tool will continue to work after the transfer to the Gov.UK website in 2014 and will continue to provide the same level of information.

Our response: Unfortunately, Gov.UK will not support the H1 Software Tool and we plan to make the modified version of the tool available via our National Customer Contact Centre. At this juncture it is not clear what form the H1 system will take on Gov.UK, although the documents that were published in 2011 have, temporarily, been transferred across in their original form. We are working to try and deliver amended annexes to the Gov.UK H1 webpage before the end of this financial year.

2.7 The scope of the Environmental Permitting Regulations (EPR) in relation to the making of bespoke permit applications to the Environment Agency

Question 7: In addition to these changes are there any other areas of EPR where you feel H1 should be modified to either simplify the making of bespoke applications or reduce the burden on applicants when compiling their bespoke application?

Summary

Some responses reflected on the transitional nature of the H1 guidance and the need for us to provide support in its use. Natural Resources Wales and Natural England both provided a series of responses of general comments on the content and use of annex F.

7.1 A Water company requested a proportionate increase in the free advice time offered by the Environment Agency to applicants where changes to H1 have added to the complexity of applications made under the IED and WFD.

Our response: We do not consider that either IED or WFD has significantly increased the complexity of applications. For example, the IED requirements for baseline reports and monitoring conditions were required under previous legislation. Similarly the guidance for compliance with the Dangerous Substances Directive required an assessment of impact from discharges of substances and a permit application where this met tests of significance. We have also provided training to water company staff on using the Hazardous Pollutants guidance. We do not intend to increase the free advice time for pre-application discussions.

7.2 Interest in stakeholder workshops to disseminate information on the implications of IED and WFD for the EPR was shown by a Water company.

Our response: We developed the Hazardous Pollutants Guidance with water company input and we have provided training for water company staff on its use. For IED we are engaging with stakeholders through our industry sector groups. We do not see the need for and are not planning further stakeholder workshops.

7.3 Following on from the previous query, the consultant asked if data is missing, or there is insufficient number of results but there is a short term H1 assessment submission deadline, should the data available be used or would there be an extension of the submission date to allow for sampling and analysis.

Our response: No permit application should be made until all the required data are available.

7.4 A consultant asked when the updated H1 guidance will be introduced.

Our response: We are aiming to place all amended annexes onto Gov.UK by the end of this financial year.

7.5 A consultant asked will previous H1 assessments be expected to be updated ever or within a certain timeframe, or will they still be accepted until a permit is varied?

Our response: It is likely that H1 assessments will need to be revisited when the operator makes an application for a variation to an existing permit, or when prompted by a requirement within a permit review?

7.6 A consultant asked if they would be given access to the Environment Agency's Easimap.

Our response: Easimap is currently only available to our employees. If a consultant did need to access the maps they could request the information in the normal way via our National Customer Contact Centre on 0370 850 6506.

7.7 Concerned about the provision of support, a consultant asked will there be an Environment Agency team to answer H1 questions, or alternatively, designated staff in each Environment Agency group and/or area with detailed knowledge and experience?

Our response: Our expertise in H1 is being grown with the development of a Super Users group who will act as the first port of call for any local queries. Failing that, queries will come in to N Heptinstall.

7.8 The consultant went further and asked what additional impacts should be considered when a SRP fails due to one criterion?

Our response: We publish the risk assessment associated with each Standard Rules permit. Where one criterion within the standard rule is not satisfied in the application the operator should carry out their own risk assessment on that aspect of their activity. Such a situation requires an application to be made for a bespoke permit. Guidance on undertaking risk assessments for bespoke permits is available through the H1 series of documents.

7.9 Another consultant asked how will the Environment Agency links to external guidance work in Gov.UK?

Our response: An H1 horizontal guidance webpage is included on GOV. UK, the link is: https://www.gov.uk/government/consultations/environmental-permitting-changes-to-h1-environmental-risk-assessment

7.10 The refinery trade association stressed that H1 needs to clarify conflicts between IED, Refinery BREF and WFD EQS, particularly the EQS requirements for priority hazardous substances, priority substances and other pollutants.

Our response: We have to have regard to the Environmental Quality Standard Directive[12] (EQSD) in determining what should be BAT for the installation. Having seen that a local receiving water body is of poor status and in danger of/actually breaching EQSD standards, we would require a higher standard of BAT for the emitting installation. That would translate itself into a stricter ELV, possibly stricter than the BAT-AEL.

7.11 "If a 'full-suite' of analysis has not been carried out on a set of samples, should the H1 assessment simply be carried out on the substances for which data is available? Or should additional analysis be carried out prior to the assessment?"

[12] 2008/105/EC

Our response: We need data for all substances which are likely to be in the discharge and all the data should be obtained before the assessment is carried out.

7.12 “If data are missing, or there are insufficient number of results but there is a short term H1 assessment submission deadline – should the data available be used or would there be an extension of the submission date to allow for sampling and analysis?”

Our response: No permit application should be made until all the required data are available. Any uncertainties in data required to support an application should be resolved in pre-application discussions with us prior to making an application.

7.13 “Discharges to TraC – will it only be EA employees who have access to EASIMAP and/or the maps available at the EA National Permitting Centres? Or will there be access for consultants such as ourselves?”

Our response: Easimap is only available to our employees. If a consultant did need to access our information they could request the information in the normal way via our National Customer Contact Centre on 0370 850 6506.

7.14 Public Health officials sought confirmation of what amendments had been made to the postscript on lead standards in Table B1.

Our response: The previous postscript reference ‘e’ has been removed. This referred to spatial limitations where the standard did not apply because of historic contamination in the vicinity of some old industrial sites.

7.15 The removal of carbon monoxide from Table B5 prompted Public Health officials to ask if this was because it is included in Table B1.

Our response: Yes, that is correct.

7.16 Looking at page 38 in annex F, a consultant pointed to reference to an improved, more up-to-date approach for the derivation of new EALs. But it noted the EALs in Table B5 were those from the old H1 that had been derived using the earlier method.

Our response: In 2012 we did consult the public on proposals for a revised hierarchy for the derivation of new environmental assessment levels. However the consultation response document has not been published and so the original hierarchy remains in place. Consequently the old H1 EALs contained within annex F version 2.2 remain unchanged.

7.17 The content of annex F confused one trade association. They cited the example of Appendix B and suggested that EALs for human health appears to be a mixture of old and new with neither relating to the other. As a result, it is no longer clear how these values have been derived.

Our response: Please see our response to query 7.16 above.

7.18 Referring to the EAL consultation of 2012, a trade association sought clarification on how the Environment Agency intends to change over to the new system of EALs. Specifically they sought information on the process, the timing whether industry will be consulted on both the values and methodologies used prior to their implementation.

Our response: Please see our response above this query.

7.19 A series of queries and proposed changes to the text in annex F were suggested by Natural Resources Wales, they are:

In the section “Screen out insignificant process contributions’ after the first ‘long term’ insert ‘i.e. annual mean;

Our response: If published in its current form we will modify annex F to include this proposed change.

In the section “Screen out insignificant process contributions’ after the first ‘short term’ insert ‘i.e. hourly mean;

Our response: If published in its current form we will modify annex F to include this proposed change.

The title ‘Detailed modelling of long term emissions’ to change to ‘Detailed modelling for long term benchmarks’.

Our response: If published in its current form we will modify annex F to include this proposed change.

Page 13 the sentence ‘As a guide, replace ‘of long term emissions’ with ‘for relevant long term standards’.

Our response: If published in its current form we will modify annex F to include this proposed change.

Page 13 section ‘Detailed modelling of long term emissions’ last bullet ‘±50per cent’ thought high.

Our response: This is taken from annex 1 of the EU Ambient Air Quality Directive.

Bottom of page 13, last sentence is not clear.

Our response: If published in its current form we will modify annex F to improve the clarity.

Page 14 First paragraph – ‘same statistical basis’ you cannot add 98 percentiles to 98 percentiles.

Our response: If published in its current form we will modify annex F to improve the clarity.

Page 14 – heading ‘Detailed modelling ‘of short term emissions’ should read Detailed modelling ‘for short term benchmarks’.

Our response: If published in its current form we will modify annex F to improve the clarity.

Page 14 – heading ‘Detailed modelling ‘of short term emissions’ first line ‘..detailed modelling of short term emissions‘ should read ‘..detailed modelling for short term benchmarks’.

Our response: If published in its current form we will modify annex F to improve the clarity.

Page 14 – heading ‘Detailed modelling of short term emissions’ first bullet ‘short term emissions’ should read ‘short term exposures’.

Our response: If published in its current form we will modify annex F to improve the clarity.

Page 15 – section ‘Estimating total impact of emissions’-it seems this section is not needed?

Our response: We have said that whilst the environmental quotient enables the comparison of options the Cross Media BREF delivers a more holistic assessment. Hence we will remove this small section from annex F.

Page 21 Table 3.2 - insert ‘hourly average’ after ‘log term 98 percentile’.

Our response: If published in its current form we will modify annex F to improve the clarity.

Page 21 Table 3.2 - insert ‘100 percentile hourly average’ after ‘Maximum short term’.

Our response: If published in its current form we will modify annex F to improve the clarity.

Page 22 line four - insert ‘it is likely to’ after ‘and so’.

Our response: If published in its current form we will modify annex F to improve the clarity.

Page 34 where are Tables B2, B3,B6,B7?

Our response: B2, B3 were not included in 2010 and B6, B7 were removed in our proposed change to the derivation of EALs.

Page 14 last 2 paragraphs – smaller combustions units (<20MWth) are not regulated by the Environment Agency, yet they will still need to comply with the same conservation requirements as larger combustion plant. If the PC exceeds the relevant environmental standard (e.g. critical levels, nutrient nitrogen critical loads, acid critical loads) outlined in annex F then further investigation is warranted.

Our response: If published in its current form we will modify annex F to improve the clarity.

DEFRA has produced guidance for Part A2 and Part B processes which should be brought to the attention of the operator during pre-application discussions.

Our response: If published in its current form we will modify annex F to improve the clarity.

7.20 A series of queries and proposed changes were suggested by Natural England, they are:

Page seven final paragraph – is the 24hr critical level for NOx a statutory EQS? If not, the penultimate sentence here needs to refer to more than just statutory EQS.

Our response: The 24hr mean value for nitrogen oxides (as NOx) appears through implementation of the Ambient Air Quality Directive 2008. It is used in terms of ecological assessment as an indicator of harm at all UK locations.

Page eight receptors – different distance criteria are used for intensive livestock units (annex B) and reference should be made here. The final paragraph refers to the assessment of deposition and it may be clearer if the section starts with a sentence covering ground level concentrations (and critical levels).

Our response: The point about screening distances for ammonia resulting from Intensive Agriculture is well made. We will add a sentence to this section referring to Intensive Agriculture and annex B.

Page 10, photochemical ozone – is the inclusion of the word 'no' in the first sentence a typo?

Our response: If published in its current form we will replace 'no' with 'any'.

Page 11, Screen out insignificant process contributions – first bullet under 10 per cent process contribution benchmark – we do not believe this explains why a higher benchmark is justified.

Our response: Generally, modelling prediction of short term average has a larger model uncertainty than a long term average.

Page 11, Estimating the PEC – It wasn't clear from reading this paragraph why a "qualitative" response should be provided.

Our response: If published in its current form we will replace "qualitative" with "quantitative".

Page 12, Identifying significant releases – the introductory sentence to this section says that there are three types of air quality standards but then only has two sub-headings? There should also be mention of critical loads and levels for ecosystem protection here too.

Our response: Because critical loads are not an air quality standard there are only two types and if published in its current form we will change the text accordingly.

Page 13, detailed modelling – possible error margin of ± 50 per cent - is there a reference you could include for this?

Our response: Details of modelling target uncertainties in compliance with the EU Ambient Air Quality Directive may be found in annex one to that directive.

Page 14, detailed modelling, last paragraph – APIS is also an accepted (and widely used) source of background concentration/deposition data.

Our response: Agreed. If published in its current form we will add APIS to the list.

Page 14, detailed modelling of short-term emissions – is this 20 per cent benchmark (and formula) new?

Our response: No, it's been a part of H1 since 2003.

Page 18, calculate process contribution – does this calculation match (is it consistent with) the guidance in AQTAG06? Note – annex B also advises that ammonia needs a variable deposition factor.

Our response: The deposition calculation is used to calculate the metals (in the particle phase) deposition. AQTAG06 and annex B do not deal with particle deposition. Hence it is consistent.

Page 19, evaluate the consequences – the deposition of S and N in relation to effects on nature conservation sites can be assessed quantitatively by comparison with the established critical loads.

Our response: If published in its current form we will remove the penultimate bullet point. This is because this deposition calculation is mainly for particles. The deposition of S and N is dealt with in AQTAG06 and annex B.

Page 39 – critical levels and loads for assessment... – not convinced “worthy of protection” is quite the right terminology to use here. In the examples of sites, I would include SACs. Not sure what is meant by “In addition, material or industrial/commercial activities may have particular environmental requirements”?
In the last paragraph, suggest replacing ‘at risk from’ with ‘sensitive to’ acidification and nutrient enrichment.

Our response: We agree that “worthy of protection” is not quite the right terminology to use here. If published in its current form we will amend the text. We will also consider adding Conservation of Habitats and Species Regulations 2010 for SPAs and SACs sites, and Countryside and Rights of Way (CRoW) Act 2000 for SSSI sites.

Page 42, ambient/background levels – data from APIS is also widely used and accepted.

Our response: If published in its current form we will add a link to APIS.

Page 43, last sentence – suggest you include reference to deposition as well as concentrations.

Our response: Generally, the deposition is derived from the predicted concentration. The current H1 rightly focuses on concentration. For completeness, you may include reference to deposition as well, but a light touch will do.

2.8 Please provide any other comments

Summary

A small number of responses were made under question eight of the consultation document. Most reflected issues in specific annexes across H1 and in those cases the queries are included under the specific sections of this report. Two queries were outside this framework and these are listed below.

8.1 A water company highlighted the omission of a regulatory impact assessment with the consultation. They expressed an expectation that an RIA would be included with our response to the consultation.

Our response: We have included at the start of our response to question 3a a section entitled 'Accountability for Regulatory Impact'. Within that section we have set out what we believe are the requirements on us when we proposed to change our screening methodology for hazardous pollutants.

8.2 A water company had a comment regarding annex H and global warming potential. They asked for an explanation how the emission factors in Table B1 and B2 are expected to align with other areas of greenhouse gas reporting.

Our response: For the climate change agreement (CCA) scheme the energy emission factors used are those from DEFRA's 2012 greenhouse gas reporting guidance. The text below is taken from the technical annex to the individual climate change agreements that every operator and sector association enters in to.

With the exception of coke and ethane, the figures in table one are taken from Table 1c of annex one of the 2012 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting. In the case of coke and ethane, the figures are carried over from fuel conversion factors in CCA10 for the old CCA scheme (2002-2010). The figure for electricity is the five year rolling average for 2010 in table 3c of annex three of the 2012 Guidelines to DEFRA/DECC's GHG Conversion Factors for company reporting. The figure of 0.0546 kg/kWh of electricity is in primary energy terms and 2.6 units of primary energy are assumed to be associated with each unit of consumed electricity. The following link may assist you further.

See https://www.gov.uk/government/publications/climate-change-agreements-technical-guidance

The intention is to use these factors for the entire lifetime of the current CCA scheme that runs until 2023.

References

Countryside and Rights of Way Act 2000

H1 Horizontal Guidance Note. Environment Agency 2011 available via: https://www.gov.uk/government/publications/h1-environmental-risk-assessment-for-permits-overview

HSE (2011) EH40/2005 Workplace Exposure Limits 2nd edition, available via: www.hsebooks.co.uk

The Environmental Permitting (England and Wales) Regulations 2010 SI 675 London: The Stationery Office

The Environmental Permitting (England and Wales) (Amendment) Regulations (EPR) 2013 SI 390 London: The Stationary Office

List of abbreviations

ADMS	Atmospheric Dispersion Modelling System
AQTAG	Air Quality Technical Advisory Group
AW	Ancient woodland
BAT AEL	Best Available Techniques Associated Emission Level
CAPEX	Capital expenditure
CCA	Climate Change Agreement
DOC	Dissolved Organic Carbon
EPR	Environmental Permitting Regulations 2010/2013
EQS	Environmental Quality Standard
ISO	International Standards Organisation
JNCC	Joint Nature Conservation Committee
LNR	Local Nature Reserve
LOD	Limit of Detection
LPG	Liquid petroleum gas
LWS	Local Wildlife Sites
MCERTS	Environment Agency's Monitoring Certification Scheme
NNR	National Nature Reserve
OPEX	Operating expenditure
OSM	Operator self monitoring
PC	Process Contribution
PEC	Predicted Environmental Concentration
PM	Particulate Matter
Q90	90 per cent exceeded or low flow rate
Q95	95 per cent exceeded or low flow rate
Ramsar	1971 Convention on Wetlands
SAC	Special Area of Conservation
SPA	Special Protection Area

SSSI	Site of Special Scientific Interest
STRF	Sewage Treatment Reduction Factor
TraC	Transitional Waters (Estuarine and coastal)
UKAS	United Kingdom Accreditation Service
UWWTD	Urban Waste Water Treatment Directive
Vd	Deposition velocity
WFD	Water Framework Directive

Appendix

Respondents to the consultation
AWE, Aldermaston
British Poultry Council
Chemical Industries Association
Confederation of Paper Industries
Energy UK
M J Carter Associates Limited (2)
National Farmers Union
Natural England (2)
Natural Resources Wales (2)
Public Health England- Centre for Radiation, Chemical & Environmental Hazards
RPS Group
Severn Trent Water
SLR Consulting Limited
South East Water
Thames Water
UK Petroleum Industries Association
UK Steel - S Baker
Yorkshire Water

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