



H1 Annex D Public Consultation Response

December 2014

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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 contains the queries and responses from the Environment Agency's H1 public consultation for Annex D, which ran from 31st October 2013 to 24th December 2013. This document relating to the permitting of hazardous pollutants is being published ahead of the responses for the other documents in the consultation; the complete consultation response will be published in due course. It is our intention to start using the new approach to the permitting of hazardous pollutants across all activities within the Environmental Permitting Regulations 2010 from 1st February 2015.

Responses to queries relating to Annex D (includes D, D1, D2, D3).

Queries are set against the questions they relate to in the consultation document. They are listed sequentially. Queries of a general nature in relation to Annex D are included in Q3a.

Questions and responses

Q3: 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.

D1 An industrialist sought clarity between the equivalence in Annex D for a substance classed as insignificant and the de-minimis 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 received a large number of responses. We have responded specifically 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.

D2. 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.

D3. 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 (£150K 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 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. 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.

D4. 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 3 we ask "Does the difference between upstream quality and the Predicted Environmental Concentration (PEC) exceed 10 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 3 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 10 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:

1. The BAT Conclusions Document for each sector will set out what is considered BAT.
2. 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.
3. 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.
4. 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 3 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.

D5. 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 providing 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.

D6. 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.

D7. 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.

D8. 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.

D9. 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 2. 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 3 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.

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

D10 Looking at Annex D1 Test 2 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.

D11 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.

D12 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 D11.

D13 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:

1. discharges to dry ditches (see 5.5.2 of Annex D1);
2. ephemeral streams with the local sensitivities,
3. needs and significance of the receiving watercourse and/or
4. 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 10 per cent 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.

D14 A water company sought clarity on which elements of the Water Framework Directive (WFD) are statutory. It suggested 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.

D15 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 that 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.

D16 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. DataShare 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 0370850 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.

D17 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.

D18 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)

D19 A consultant asked when Drinking Water standards (page 10) should be used and should their use be 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.

D20 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.

D21 The 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.

D22 Assurance on the time taken by the NLS to produce PNECs was sought by 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.

D23 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 per centile 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.

D24 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”.

D25 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.

D26 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:

1. we have reason to believe the substance is present in the discharge (because it is being discharged into the works by a trader),

2. the receiving waterbody is failing its EQS for a substance and the sewage works is a potential source of that substance.

D27 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 03708 506 506, or local area office.

Our documentation will be kept up to date and the Chemical Standards Database is currently the best source of information.

D28 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 there will be a charge for such modelling made by the regulator 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.

D29 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 03708 506 506.

D30 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.

D31 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.

D32 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.

D33 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.

D34 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.

D35 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”

D36 An industrialist thought the new screening approach could incur additional costs, due to the ‘heavy reliance on acquiring good quality data for upstream chemical analysis’.

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.

D37 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.

D38 An industrialist presumed the introduction of the new Test 3 was an interpretation to ensure “no deterioration” within the status of surface waters. They thought “10 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 10 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.

D39 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 1 and 2 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:

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

D40 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 2

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 10 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.

D41 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 permit review or when prompted by revision of the Best Available Techniques reference document (BREF)?

Our response: On publication of the Refinery 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.

D42 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:

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

D43 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 be asked to provide evidence to inform this assessment.

D44 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.

D45 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:

1. discharges to dry ditches (see 5.5.2);
2. ephemeral streams with the local sensitivities,
3. needs and significance of the receiving watercourse and/or
4. 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.

D46 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.

D47 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 10 per cent of the EQS.

D48 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).

D49 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:

1. cause or contribute significantly to a breach of EQS, or
2. 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.

D50 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.

D51 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 waterbodies and target improvements as part of the river basin planning process. Regulating individual effluents which discharge into or downstream of failing waterbodies is only one part of this overall process.

D52 An installation suggested that by assuming the upstream concentration of pollutant in the river was 10 per cent of the EQS, then the screening test will fail.

Our response: We assume upstream water quality will be at 10 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 10 per cent of EQS deterioration on upstream quality. However, this test can fail when assuming upstream quality is 10 per cent of EQS, if effluent quality is less than EQS and there is low dilution in the receiving water.

D53 In 'Next Steps' an installation suggested paragraph B contradicts a previous statement which states if Tests 1 and 2 are passed then no further assessment is necessary.

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

D54 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 a 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.

D55 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/second is used in relation to the Annual Average EQS. For the MAC EQS, the flow rate of 100 litres/second 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.

D56 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 5 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.

D57 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/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.

D58 One respondent, with a history of ten years of Environment Agency sampling of their effluent, challenged the statement that the LODs 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 than 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.

D59 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 than those 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 10 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.

D60 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.

D61 The same respondent asked how the number of samples in Table 2 were 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 10 per cent of the time.

D62 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.

D63 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 10 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.

D64 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 10 per cent of the EQS, the substance will be screened out in Step one of screening and will not be modelled.

D65 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 10 per cent.

Our response: Modelling may be required for any substance where the LOD is greater than 10 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.

D66 One respondent asked us to explain how we will treat discharges that may change the EQS by more than 3 per cent, particularly where deterioration in the upstream water quality is already at or greater than 3 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 waterbodies that are failing EQS, we will investigate the causes of the 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.

D67 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.

D68 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.

D69 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.

D70 A typo was identified on page 17 where Table 1.3 refers to Table 1.3 when it should refer to Table 1.2.

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

D71 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.

D72 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.

D73 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.

D74 The company added it was also unreasonable because total and dissolved levels need to be provided.

Our response: For the Phase 2 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 2, the risk to EQS is assessed using total metal data. Although precautionary, this ensures that:

1. 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
2. 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.

D75 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.

D76 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.

D77 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.

D78 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.

D79 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 this is not possible then the assumptions about upstream quality as set out in the guidance will be made.

D80 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.

D81 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”.

D82 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.

D83 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.

D84 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:

- i. Consideration 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.

- ii. 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 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.

- iii. 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.

- iv. **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.

- v. **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.

- vi. **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.

- vii. **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. Bioavailable 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.

D85 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:

- (i) **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.

- (ii) **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.

- (iii) **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 suggest 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.

- (iv) **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 10 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 10 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 more than 10 per cent. However, where such a deterioration is proposed the applicant must demonstrate to us that such a deterioration would be appropriate. Page eight states that “If you think that you cannot achieve a permit limit that will allow for a 10 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 a 10 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 an 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.

(v) 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 waterbody 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.

D86 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:

- (i) Protected site targets may differ from those listed for determinands in Annex D3, especially phosphorus and other sanitary determinands.**
- (ii) 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.

D87 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.

D88 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.

D89 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.

D90 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.

D91 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.

D92 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 3 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.

D93 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. DataShare 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 0370850 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.

D94 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. DataShare 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 0370850 6506.

D95 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. DataShare 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 0370850 6506.

D96 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. DataShare 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 0370850 6506.

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

D97 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 these will be applied. We hold separate guidance to ensure that these are taken into account when making permitting decisions.

D98 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.

D99 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 a 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.

D100 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. A surface water will potentially have a number of different objectives (such as WFD sanitary classes, no deterioration, habitats directive). Where there are multiple objectives for a 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.

D101 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.

D102 If third party STRFs are used in assessment of a surface water discharge, a consultant asked what supporting evidence we would 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.

D103 In the absence of river quality data the guidance suggests assuming 10 per cent of the EQS in ‘clean’ watercourses or 50 per cent in polluted water courses. On this basis how would a river 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 10 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.

D104 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.

D105 A consultant suggested it was unclear how Test 3 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 3 can still be undertaken using the failing upstream quality. It will be Test 4 of screening in these circumstances that will be the deciding test as to whether to pass through to modelling. Test 4 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 3 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.”

D106 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.

D107 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 m³/s, this has reduced to 3.5 m³/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 m³/sec. This is consistent with a mixing zone no greater than 2000 m³. This will result in some discharges being referred to detailed modelling where they would not have been if the value of 5 m³/sec was used. We are comfortable with this, due to the detailed assessment we have undertaken.

D108 An installation considered the need for upstream background data for Test 3. They suggested where these data are not available or representative of the discharge, 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.

D109 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 3 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/toxic to the biota in the receiving environment. In such situations we must do all we can to limit its impact.

D110 Figure 5 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.

D111 An installation asked us to explain why we had selected 10 per cent as an appropriate percentage of deterioration allowable in a main river.

Our response: The 10 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 waterbody. 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.

D112 A trade body suggested that the PEC increase of 10 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: 10 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 10 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 waterbody. 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.

D113 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 4 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.

D114 It was noticed by a trade body that on page 21 the Environment Agency refers to EU Mixing Zones guidance in context of 4 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.

D115 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.

D116 Within Phase 2 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 2 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 2 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. Bioavailable 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.

D117 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 as we are assuming 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.

Bioavailable 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.

D118 Phase 2 modelling Test 2 (UK criterion of no more than 10 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 3 “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.

D119 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.

D120 A trade body asked how should data that are below the LoD or LoQ 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.

D121 Considering page 20, with an effluent concentration less than 10 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 3 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.

D122 A trade body noticed that on page 20 Test 2 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.

D123 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.

D124 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.

D125 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.

D126 Citing Test 3 on page 28, a trade body found the criterion for limited dilution/dispersion unclear. Does it relate to:

- 1. limited capacity for mixing in the vicinity of the outfall, or**
- 2. 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:

1. the potential for limited capacity for mixing in the vicinity of the outfall, and
2. 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 3 will cause the operator to discuss with us :

1. what modelling is required, and
2. what is appropriate for the scale of the discharge and the sensitivity of the receiving waters.

D127 Looking at Test 5, 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 $3.5 \text{ m}^3/\text{s}$ the condition was equivalent to an allowable load m [kg/s] of $3.5 [\text{m}^3/\text{s}] * (\text{EQS}-\text{BC}) [\text{kg}/\text{m}^3]$, where BC is Background Concentration. Taking the screenable 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 5 is only a signal to undertake detailed modelling. Following modelling, we may accept a mixing zone very much larger than 2000 m^3 .

D128 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.

D129 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:

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

they thought such a coarse assumption was incompatible with detailed Phase 2 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.

D130 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 D125.

D131 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.

D132 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 10 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 10 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 10 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 10 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 10 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.

D133 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 1 within the specified hierarchy allows us to accept a justified discharge which delivers more than 10 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.

D134 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.

D135 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.

D136 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.

D137 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.

D138 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.

D139 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.

D140 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 per centiles 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.

D141 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

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

This question received only limited response which focused on the data needed to complete the H1 assessment and access to our EASIMAP system.

D142 “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 are available? Or should additional analysis be carried out prior to the assessment?”

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.

D143 “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.

D144 “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 0370850 6506.

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