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5	Ruth Barden – Wessex water				<p>This report identifies the substances which UKTAG interprets as falling under the categories listed in Annex VIII of the WFD. It is up to individual member states to identify these substances and the environmental quality standards required in watercourses to enable good ecological status to be achieved. The report details the process used to derive the list of substances- 33 have been identified and new standards put forward for 9 substances, with existing standards being recommended for a further 9. The report details which substances need no further evaluation or standards set, and those where there is insufficient data to be able to derive appropriate standards. Where UKTAG have been unable to derive standards further work will be undertaken to collect data in order that this can be achieved. The report seems contradictory in relation to the timescales for deriving the remaining standards but seems to suggest that this will be ongoing through the 1<sup>st</sup> RBMP in order that the new EQS will apply in RBMP2.</p> <p>Specific comments  P11 - for the substances described as 'not yet defined as specific pollutants under the WFD' are there plans to eventually derive EQS in the future, and would this be before or after RBMP1? For these substances is there a proposal to collect more field data during RBMP1 rather than rely on laboratory studies of toxicity?</p> <p>P13 Step 6 - it is important to compare the existing work undertaken by the UK with that of other member states, as well as the future work.</p> <p>P14 – it is reassuring that UKTAG will make proposals to revise standards if and when new evidence becomes</p>

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					<p>available. Within the proposed standards is there any mechanism for the formal review of standards after a specific time period?</p> <p>P15 points 4 &amp; 5 - it is unclear whether new PNECs will be developed in time for the first round of RBMPs or not.</p> <p>P17 – there is the possibility that a new EQS for iron could limit water companies' abilities to remove phosphorus from sewage using end of pipe ferric dosing, particularly given the tight P standards proposed in the first UKTAG report. However, this would depend on the level of the proposed iron EQS.</p> <p>P19 - the cypermethrin standards in surface waters are in ng/l whereas the other pesticides standards are in µg/l. Assuming this is not a mistake, it will be technically challenging to measure cypermethrin (or any of the other synthetic pyrethroids) at these concentrations.</p>
6	Roger Furniss – South West Rivers Association		<p>NO. We support the findings of the APEM Report attached and wish to see the standards and conditions in relation to Suspended Solids/Siltation revisited.</p> <p>See APEM report – <a href="http://www.wfduk.org/LibraryPublicDocs/APEM">http://www.wfduk.org/LibraryPublicDocs/APEM</a></p>	NO. Again the APEM report identifies improvements which should be made	YES. We believe that more attention should be paid to holistic ecological assessment rather than the simplistic chemical sampling proposed which tends to underestimate ecological problems especially those caused by intermittent events.
7	Stuart Clough - APEM	Overall, the UKTAG report on Specific Pollutants explains well how the environmental standards and conditions were developed by UKTAG. It appears that these, for some parameters (phosphorus, ammonia) that are to be set to support Good Ecological Status as described by the WFD, have been developed with the help of a large	The overall approach of UKTAG to derive standards for Specific Pollutants appears to be sufficient in the identification of the standards and conditions required to achieve the environmental objectives of the WFD (e.g. Good Ecological Status). However, the black and white approach of the report in terms of proposing standards for freshwater and saltwater fails to address	Though it is briefly mentioned on page 13, that PNECs may differ for saltwater and freshwater for each substance, this needs to be further elaborated and literature utilized.	Basing the development of standards on annual means fails to evaluate the effect that seasonality (i.e. temperature etc) and other factors may have on the concentrations of specific pollutants and subsequently the time of exposure to aquatic biota. As such, it is suggested that this may be discussed in more detail in the report and how standards based

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		<p>chemical data set that was matched with valuable biological data that covered much of the UK. However, due to the lack of such 'matched' data sets, the development of standards for most substances relies much upon laboratory studies and/or generally small data sets.</p> <p>Generally, data from robust field based experiments rather than laboratory trials would be more useful for the development of standards for Specific Pollutants would be more useful to enable sustainable management decisions to be made. Large scale approaches such those required for the UK to meet the WFD objectives by 2015 require robust data to be collected from representative habitats.</p> <p>UKTAG is aware of the short-comings of the available data sets and will base proposals of any standard on the adequacy of the available data. This is sufficiently pointed out in the report. The report proposes new standards for nine substances that would apply to the water column. No proposals are made for standards for sediments or biota. This shortfall is addressed in the report, but is in need of expansion.</p>	<p>the problem for aquatic ecosystems comprised of brackish water including for example estuaries, which are important habitats for many aquatic organisms. Further consideration should be given to transitional waters and these should be included in the UKTAG's proposals.</p>		<p>on acute toxicity may be developed to address this problem.</p> <p>Currently, the amount and type of data available to develop UK standards differs much between England and Wales, Northern Ireland and Scotland. However, to enable unified standardization in the UK and to meet WFD objectives by 2015, it is necessary that a unified and unbiased routine monitoring approach (of sites at risks as well as sites not considered to be at immediate risk) be taken by all countries within the UK. To enhance the confidence of the stakeholders, assurance may need to be given in this report that such plans and works are underway.</p>
10	Howard Brett – Thames water	<p>Broadly we agree that the report is clear in explaining how the proposed environmental standards and conditions have been developed. Although we feel that there should be a clearer differentiation between Parts A, B, and C as it is only Part A that are proposed as specific pollutants.</p> <p>See also covering letter - <a href="http://www.wfduk.org/LibraryPublicDocs/thamesletter">http://www.wfduk.org/LibraryPublicDocs/thamesletter</a></p>	<p><b>General nomenclature:</b> the reports refer to 'ammonia' and 'unionised ammonia' almost interchangeably, particularly in annex B. This is confusing and unhelpful. Nor does it inspire confidence in the report when in 'deriving the standards' (p11) it refers to the process for setting standards for phosphorus and ammonia based on matched chemical and biological data, when it is now recognised that phosphorus is an indirect value and ammonia (total) ought to be.</p> <p>Furthermore, the term 'standards' is applied both to those parameters which are 'direct' and those which are 'indirect'. This is likely to cause confusion and it would be better to differentiate clearly - either describe them as 'direct standards' and 'indirect standards' or as 'standards' and 'thresholds'.</p> <p><b>Implementation:</b> It is unclear what the status of the Part B (&amp; C) standards are in WFD terms. Since they are not specific pollutants as defined, where</p>		<p>What is now the role of UKTAG? We had understood UKTAG to be a group advising on technical standards - as is set out in the introduction. However, it is evident from the documents that these papers also establish UK implementation policy. We would like to understand better the status of the policy statements and decisions set out by UKTAG as they appear to be inconsistent with our understanding of earlier implementation statements from EA and Defra.</p>

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			<p>do they enter the process to be included in programmes of measures? What will any compliance assessment look like, and on what basis? If action is required, how will the WFD tests of disproportionate cost and technical feasibility be applied? Lastly, the basis for many of the parameter values is not statutory or published but operational standards developed by the Environment Agency. Few, if any, of these will have had the benefit of an RIA to justify the limits (and hence the link back to disproportionate cost.)</p> <p><b>Part A standards</b> The apparent precision of the standards is almost certainly false, e.g. '3.4' for Cr (vi). Nor is it clear why the safety factors (assessment factors) chosen have been used. The 'three times' approach for Cr (VI) appears arbitrary. It would have been helpful to see a sensitivity analysis - or indeed, if there remains uncertainty why are these standards not considered as thresholds for an indirect model approach?</p> <p><b>Part B standards</b> What is the provenance of the annual mean of 15 microgramme/l for unionised ammonia? This is a new interpretation. What is the UK position as regards compliance with this? As such it is incorrect to state that this is an 'existing' standard as it does not feature on GQA or other schemes. Given the body of work available regarding copper and complexation it is disappointing to see the existing standard being promoted, even as an interim measure.</p> <p><b>Future work:</b> It is of little comfort that the PNECs derived from matched chemical and biological data are, for most substances, 'within an order of magnitude' of those from laboratory data. An 'order of magnitude' will, for some substances, make a huge difference to potential UK compliance and hence programmes of measures - as we saw with Nickel. We should expect to do better than this - if doubt or uncertainty remain, then an indirect approach should be taken. Otherwise unnecessary action may be taken in the first Programme of Measures.</p> <p>It is implicit in the proposals for Part B substances that these 'standards' are interim pending further work, presumably based on the underpinning technical reports. These technical reports (for instance, iron, and ammonia) imply very different standards from those currently proposed and we have considerable reservations regarding their contents. What is the process for the expected review, and to what timetable? If they are strictly for consultation now then this is misleading, as the consultation appears to be considering the current UKTAG proposals.</p> <p><b>Annex B</b> Our understanding of WFD is that it requires an equivalent degree of environmental protection. This cannot dictate that overprotective standards established in the past are applied in perpetuity, so standards do not have to be 'at least as stringent' as those in DSD.</p> <p><b>Compliance assessment - added risk approach:</b> Why should the added risk be based on PNECs from organisms that have not adapted to natural background concentrations? This is inappropriate.</p>		

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12	Anelli Gilbert – Non Ferrous Alliance	Response submitted as a letter – <a href="http://www.wfduk.org/LibraryPublicDocs/nfas">http://www.wfduk.org/LibraryPublicDocs/nfas</a>			
13	Jan Tyson – United Utilities	<p>United Utilities is a multi-utility company supplying water and treating wastewater in the North West of England, Wales and Scotland. Therefore we are pleased to contribute our views and thoughts on this important consultation.</p> <p>We have provided detailed comments to our trades association, Water UK, who have collated a separate consultation response which we endorse. In addition to this we would like to make some general comments detailed below.</p>			<p>Page 11/17 – we are disappointed that Aluminium continues to be a substance where standards are not available nor is there a firm timetable for the development. Nutrient removal (P) will continue to rely on chemical dosing and both ferric and aluminium salts will be crucial in this. This becomes more relevant to United Utilities if iron standards of less than 1mg/l are to be applied.</p> <p>Page 20 – An un-ionised NH<sub>3</sub> standard of 15 µg/l is not just a tightening of the GQA/RE class but also the FWFD standards for salmonids.</p> <p>UU also strongly agree with WaterUK comment on copper that maintaining existing standards, despite the mounting and significant evidence is disappointing.</p> <p>Page 45 – Will the nine substances where data on PNECs is lacking but the existing regulatory controls still apply in the interim be classified as poor until proper UKTAG standards are established? Without being specific pollutants under WFD, no plans to reduce levels would be generated in RBMP1, except perhaps investigatory work.</p>
14	John Martin – Severn Trent Water Ltd	Yes, the report is generally clear.	Many of the proposed PNECs are extremely low and, as acknowledged in the report, further evidence is required to confirm the suitability of the values for WFD purposes. We recognise that the objectives of the Directive are demanding but we do have concerns about the adoption of very tight standards which are then shown to be technically unachievable or disproportionately expensive to achieve. Historically it has been very difficult to move	Provisionally, yes, but as recognized in the report there is considerable uncertainty around appropriate standards for many of the chemicals discussed.	We welcome the proposed use of the “indirect model” in which measures are supported by biological evidence of need as well as by reference to the chemical standards. However, there appears to be a change in emphasis from some earlier UK TAG documents on the use of standards and compliance assessment. Is it proposed to revise the earlier papers?

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			away from standards adopted on a provisional basis even when these have been shown to be unduly restrictive. It is essential that the provisional status of standards still under investigation is made clear in any published documents.		Please see comments submitted by Water UK – ID 15 - <a href="http://www.wfduk.org/LibraryPublicDocs/wateruksp">http://www.wfduk.org/LibraryPublicDocs/wateruksp</a>
15	Steve Ntifo – Water UK	In most cases – see specific comments on report – <a href="http://www.wfduk.org/LibraryPublicDocs/wateruksp">http://www.wfduk.org/LibraryPublicDocs/wateruksp</a>	Many of the proposed PNECs are extremely low and, as acknowledged in the report, further evidence is required to confirm the suitability of the values for WFD purposes. We recognise that the objectives of the Directive are demanding but we do have concerns about the adoption of very tight standards which are then shown to be technically unachievable or disproportionately expensive to achieve. Historically it has been very difficult to move away from standards adopted on a provisional basis even when these have been shown to be unduly restrictive. It is essential that the provisional status of standards still under investigation is made clear in any published documents	The best information currently available may not always be good enough to confidently set EQS. Although in some cases this has resulted in no EQS until further work is carried out (it is not always clear whether this will be available in time for RBMP1), in others an EQS has been proposed that could be over precautionary.	
17	George Ponton – Scottish Water	In most cases – see specific comments in report – <a href="http://www.wfduk.org/LibraryPublicDocs/scotwatersp">http://www.wfduk.org/LibraryPublicDocs/scotwatersp</a>	Scottish Water is concerned at the manner in which the proposed standards and conditions will be applied and implemented. Scottish Water considers it is for the competent authorities to determine whether the proposed standards and conditions for these Annex VIII substances will enable WFD objectives to be achieved.	The best information currently available may not always be good enough to confidently set an EQS. Although in some cases this has resulted in no EQS until further work is carried out (it is not always clear whether this will be available in time for RBMP1), in others an EQS has been set that could be over precautionary.	
18	Andrew Bond – Mecoprop-P Task Force	Yes – see letter - <a href="http://www.wfduk.org/LibraryPublicDocs/mecopletter">http://www.wfduk.org/LibraryPublicDocs/mecopletter</a> and report – <a href="http://www.wfduk.org/LibraryPublicDocs/mecopreport">http://www.wfduk.org/LibraryPublicDocs/mecopreport</a>	No – see report	No – The Mecoprop-P Task force does not believe that the information used to evaluate the aquatic toxicity of the pollutant is reliable. Data available from other official sources have not been reviewed. (eg the EU 91/414 assessment report)	

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19	Yorkshire Water	<p>The first point we would like to make is that it is not made clear how the various standards will be implemented within the three cycles of the water framework directive. It is essential if Water Companies are to tool up to support this work that further guidance is provided on this by December 2007 at the latest.</p> <p>2. Any additional controls proposed for wastewater treatment works must take proper account of any environmental and economic disbenefits (particular energy use/CO2 emissions) taking whole life costs into account.</p> <p>3. As such, it is essential that the disproportionate cost and technical feasibility tests in Article 4 of the WFD are fully and robustly applied to ensure that any further investment in treatment for such substances do not increase the carbon footprints of companies for what will be marginal if any real and measurable benefit to the environment. We do not intent to challenge the standards set by the EU Commission for these substances at this stage and view this as the Environment Agency's task. We see our role as providing economically and environmentally sustainable solutions, not disproportionately costly or technically infeasible as may well be driven by such tight standards as are included here.</p> <p>4. Your first set of UKTAG standards and conditions was published in 2006. It is suggested in the phase 2 report that UKTAG phase 1 standards are to be reviewed in October 2007. This could also have significant implications for future standards at wastewater treatment works. Please could you confirm to us when this review will be complete.</p> <p>5. The preliminary assessment of nitrogen (transitional waters and coastal waters) shows that 45% are high status (out of 121) and 19% are good status, and 36% are moderate (with 50% confidence) using the indirect model. Details of which water bodies fall into the group of high, moderate and good status should be made available to the water industry as this could have a significant impact on future investment planning.</p> <p>It is also clear that in some areas it will not be possible to set standards with any confidence due to the gaps in data, and additional monitoring for the Water Framework Directive is therefore planned. Given the importance of the monitoring plan and programme, we would welcome if this could be made available to the water industry at the earliest opportunity.</p> <p>The Water Framework Directive (WFD) came into force in December 2000 and requires Environmental Quality Standards for polluting substances to be set. The standards for Priority Substances and Priority Hazardous Substances form part of the Article 16 Daughter Directive. The WFD also requires Member States to identify and develop standards for "Specific Pollutants", which is the subject of this consultation.</p> <p>Although the report is a technical document, it is not made clear how the standards will be implemented within the three cycles of the water framework directive. It is essential if Water Companies are to tool up to support this work that further guidance is provided on this by December 2007 at the latest.</p> <p>We do not intent to challenge the standards set by the EU Commission for these substances at this stage and view this as the Environment Agency's task. We see our role as providing solutions which are economically and environmentally sustainable, not disproportionately costly or technically infeasible to the water industry. It is essential that the disproportionate cost and technical feasibility tests in Article 4 of the WFD are fully and robustly applied to ensure that any further investment in treatment for such substances do not increase the carbon footprints of companies for what will be marginal if any real and measurable benefit to the environment.</p> <p>In terms of control mechanisms we believe that the substances concerned fall into three groups. These are firstly those substances that are already banned or could be banned and thus will naturally decrease over time. In this case little monitoring and no regulatory controls should be required. Secondly, the remaining man made organic substances which will not be banned, but should be controlled through IPPC and other control of pollution at source approaches. The most harmful of these substances and certainly any substances which are classified as List I under the old directive, or Priority hazardous substances under the new Directive should be phased out over time. Those which classified as List II or Priority Substances will require monitoring and or in cases where EQS compliance is substantially at risk further regulatory controls at source are to be applied.</p> <p>For metals, which are largely ubiquitous in the environment, it is essential that every practicable step is taken to reduce loads entering the environment at source, whether this is through IPPC, trade effluent control or product substitution, before any end of pipe treatment investment is made. New legal powers will be required to enable water companies to control effluents which are currently not classified as trade effluent; as such discharges contain substances which require control. Our view therefore for metals is similarly that removal at source combined with pollution prevention mechanisms should be applied as a matter of principle. Control through end of pipe solutions which are economically and environmentally unsustainable must be avoided.</p> <p>In the case of metals, if after a period of control at source and associated monitoring has not succeeded to deliver EQS compliance then a staged approach to arriving at sustainable solutions should be adopted.</p> <p>Appropriate research and development including further work on source apportionment, monitoring and investigations, and where necessary assessing the appropriateness of EQS values should be funded and undertaken in AMP5 (2010-2015). For those sites, where the EQSs are scientifically robust, and where real benefits can be afforded to the environment further investment can then be considered within the bounds of disproportionate cost and technical infeasibility.</p>			

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20	Michael Coyle, Natural England	Natural England is represented on the chemistry task team (CTT). We therefore have a good understanding of the technical approaches to standard setting used. However, more information could have been made available on certain aspects of the technical work including the choice of assessment factors in deriving predicted no-effect concentrations (PNECs) for some of the pollutants. More information on the views of the peer reviewers would also have been useful in understanding the merits of each standard developed. Please refer to Natural England's full submission for more details. – <a href="http://www.wfduk.org/LibraryPublicDocs/natengsp">http://www.wfduk.org/LibraryPublicDocs/natengsp</a>	The technical derivation of PNECs is based on criteria laid out in Annex 5 of the WFD and is subject to an expert scientific peer review. This process should ensure that standards developed will be compliant with WFD objectives. We have raised concerns on how the standards will be applied. For example, the report suggests that biological quality could be used to increase confidence that action should be taken in waters failing established environmental quality standards. Given that a) standards have only been endorsed when there is high confidence in their toxicity (AF 10 or below) and b) biological monitoring will be relatively limited in its scope, we would not support the delay in action where EQS failure is clear. The normative definitions outlined in Annex 5 of the WFD state that waters at good status should not exceed EQSs set under this process. Please refer to Natural England's full submission for more details.		
21	Morag Garden, Scottish Whisky Association	Yes. Our members have no specific comments on the substances identified to date as Specific Pollutants or the approach taken to identify Specific Pollutants	Overall we welcome the identification and development of standards for Specific Pollutants, especially the pesticide sub-set, which we would not wish to see in Scotland's water.  We do not have any specific comments on the copper standard set out in this document but we would wish to be involved and updated on any revision of this standard.	Yes	The report highlights that it does not cover the economic assessment of the impacts of the standards or provides a full consideration of the practical aspects of using the standards. SWA and our members would wish to be included in this process and be kept up to date with progress.
22	Gary Sinclair, Scottish Salmon Producers	The report is very clear on how the proposed environmental standards and conditions have been developed.	The approach used in the report and supporting documents is clear in identifying the standards and conditions required by the WFD to achieve its environmental objectives, namely Good Ecological Status.	To our knowledge, the information used in the approach regarding specific pollutants covered by the report and supporting documents is the most current and relevant. However, we are interested to see what the outcome of the industry-led voluntary risk assessment for copper, currently in preparation, will yield. The SSPO would wish to be fully involved in this process and made aware of the conclusions of this RA	Cypermethrin – We are concerned about the proposed PNEC's for this substance being adopted as the new EQS. Cypermethrin is the active ingredient of EXCIS, an in-bath sea lice treatment. The proposed reduction of 50% to the existing EQS for Cypermethrin is likely to have significant welfare implications for fish under the care of veterinary surgeons and fish farmers and also have highly significant socio-economic effects on producers and local economies, since the substance is vitally important for the successful control of sea lice in salmon farming. This is a factor that needs to be taken into account within a

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				<p>as these come to light. We have several concerns where this section is concerned, specifically with regards to the proposed standard for Cypermethrin, which we have detailed in the following section.</p>	<p>Regulatory Impact Assessment since it could ultimately affect the viability of the salmon farming industry. Since Cypermethrin sometimes requires to be used several times daily over a number of consecutive days because of existing controls, SEPA sets 3 hour and 24 hour EQS's in order to mitigate against the cumulative effects of multiple treatments. Farmers currently operating treatment regimes using a given level of Cypermethrin (which is matched to their level of production) may be forced to downscale their operations if the EQS is lowered to the PNEC suggested in this report. Due to the high degree of regulation of the industry in the UK in comparison to the major global competitors in Norway and Chile, the Scottish industry is already disadvantaged by higher costs of production. Any further restriction to practical farming operations managed through WFD will further disadvantage the industry with inevitable economic consequences.</p> <p>This result could be that producers are no longer able to use enough of the substance to treat all of their cages simultaneously at the required concentration for effective treatment. This is particularly important where pontoons of smaller cages are concerned, which may result in the treatment being ineffective, since the lice will move from the cages being treated to untreated ones in order to avoid it, then back again once the treatment is complete, re-infecting the treated fish. Similarly, where large free standing cages are concerned, the volume of even a single cage may require more of the treatment than the revised (or even existing) EQS will permit, meaning that even single larger cages cannot be treated. This would be a completely impractical and ineffective means of treating sea lice, and would impact</p>

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					heavily on producers. An additional worrying dimension arises where there are several producers farming in a single water body, who wish to treat their cages simultaneously in order to prevent lice re-infesting any farms that are not treated, while the rest have been. As well as recognising the environmental responsibilities within this issue, it is important to consider the balance with the health and welfare of the stock, and the socio-economic importance of the industry to remote rural communities in the Highlands and Islands.
25	Mark Owen – Gospall Fishing Club	Yes	Yes	Yes	No
26	Mike Gardner - WRC	Yes, the report gives a clear account of the methodology used	Yes. UKTAG has had to operate under several constraints with respect to the approach used to derive standards. Given this and other prevailing uncertainties relating to the implementation of the Water Framework Directive, the standards proposed represent a sound approach to meeting environmental goals.	Yes	<p>I have three minor comments on the detail in the report. Sources of chromium VI On page 16 it is stated that The only sources of chromium(VI) are anthropogenic Strictly speaking this is incorrect. In natural waters the most common forms of the metal are Cr(III), mainly present as an aquo-ion and Cr(VI), principally as the chromate ion, CrO<sub>4</sub><sup>2-</sup>. Thermodynamic factors indicate that in oxygenated waters of pH value greater than five, the Cr(VI) form will predominate (Elderfield, 1970).</p> <p>Hence whenever chromium is present, its natural state in most environmental waters will be as Cr (VI). This applies to both natural and man-made sources of the metal. (See also p52 where this point is implicitly acknowledged.) In practice, the rate at which thermodynamic equilibrium is attained can be so slow as to make Cr (III) seem relatively stable. Whilst the report goes on to state the sensible conclusion that a total risk approach can be adopted for chromium because current levels are low in relation to the proposed limit values, unless they are raised by</p>

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					<p>anthropogenic inputs it is wise not to completely rule out natural sources of Cr(VI). Elderfield H. (1970) Earth Planet Science Letter, 9, 10-16. Analytical techniques for Cr(VI). Statements on page 55 imply that methods might not be available for the determination of Cr(VI) at sufficiently low concentrations. Please see Gardner and Comber (2000) for a reported method with a limit of detection of 0.024 µg l-1. This is suitable for the intended purpose though it may not currently be in widespread routine use. Gardner, M.J. and Comber, S.D.W. Determination of Trace Concentrations of Hexavalent Chromium. Analyst. (2002) 127(1), 153-156. Limits of detection required for WFD purposes</p> <p>The assumptions/statements concerning current requirements may need to be updated in the light of recent draft proposals for a Commission Decision on this subject.</p>
27	Deryck hall – Consumer Council for water	Yes		<p>We suggest that the modelled data used to support individual measures is assigned an alpha-numeric confidence grade comprising a reliability (alpha) and accuracy (numeric) assessment. For example, A1 equates to sound records and procedures with an accuracy level of ±1%; D6, on the other hand equates to unconfirmed verbal reports or cursory inspection or analysis with an accuracy of ±100%. The water industry has been using such a system for over a decade. Utilising such a system would require those proposing measures to ensure that there was sufficient quality data</p>	<p>We note UKTAG's statement that more data is needed in many of the areas under review and, in the case of the Annex VIII substances there is inadequate analytical sensitivity for some of the substances of interest. Further research will be needed, as will more extensive data gathering, but it is debatable how much additional information or data will become available to influence the development of programme of measures within the first River Basin Management Plans. This absence of data raises a number of concerns, not least in areas where models are being proposed. Unless a model is properly calibrated the outcome can be highly suspect. As an evidence-based organisation we firmly believe that the scientific and other technical data has to be in place to support the investment decisions that will be made over each of the three cycles of river basin planning. This is not to say that we</p>

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				<p>available to support the measure whilst providing those required to make an investment with a modicum of confidence that the measure was appropriate. We consider that a holistic approach is needed to the development of measures based on risk assessment and management in each river basin and catchment in addition to monitoring against the standards. Such an approach would be consistent with the Water Safety Plans being advocated by the World Health Organisation and would follow the proposed approach of the Drinking Water Inspectorate in relation to compliance with the drinking water quality standards.</p>	<p>require certainty of outcome before we would support individual measures. But we do believe that, collectively, we should be reasonably confident that any proposed actions will deliver desired outcomes, or at least move us close to that goal. We would, therefore, be very concerned if decisions were taken on the basis of flawed modelling. We can not, and we must not, waste money on programmes of measures for which there is little or no evidence to support the investment. There is not a finite sum of money available to do all that we might like to do so we must work on the basis of 'no regrets' as we strive to meet the WFD's objectives</p>
28	John Marriott – Laboratory of the Government Chemist	<p>Page 4 paragraph 3 of the report states that the intended audience will be familiar with how water quality standards are set and used. In this context, the report is generally clear. Indeed, there would be benefit in appealing to a wider audience by developing Figure 1 (The process for determining standards) to show all the opportunities for input by stakeholders, including the wider analytical community. I am particularly pleased to see that the report includes some clear exposition of metrological principles relevant to the interpretation of standards, including the confidence interval associated with statistical errors in sampling and analysis (page 23, footnote). Presumably the data sheet for 2,4-D (pages 49-51) applies to the free acid. It would be helpful to clarify which chemical forms are covered by this standard because there are several</p>	<p>Because the process of identifying environmental standards is in essence one of setting policy objectives, I should begin by explaining how my remit fits into the machinery of Government. I am appointed by the Secretary of State for Innovation, Universities and Skills to advise on the analytical chemistry implications on standards, policy and regulations. It is therefore important that my staff have the opportunity to contribute to the formulation of analytical projects supporting risk assessment (and I would welcome a renewed commitment to liaise at this level). However, it is outside my remit to comment in detail on priorities for standardisation, which while reliant on sound scientific risk evaluation are the responsibility of the political tier. Having said this, my staff recognise that the standards identified apply to substances of real concern, and that compliance statistics as well as requirements for analytical monitoring</p>	<p>Generally, I agree with the assessment of analytical capabilities given in the data sheets (Annex C to the consultation paper). I am impressed that differences in the biological effects of closely related chemical forms are being taken into account during the standards-setting process (page 12, bullet point 2). Identifying and characterising all the potentially active species of a chemical requires significant multidisciplinary expertise and effort. LGC has an established speciation capability for a range of metals, and is currently profiling bioactive selenium-containing species</p>	<p>Overall, I welcome the progress made. The effort to assess analytical capabilities and take account of these in developing realistic standards is particularly commendable, and I believe it is urgent to work together for a similar approach to the implementation of Europe-wide standards for the Water Framework Directive Priority Substances.</p>

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		esters of 2,4-D in use.	<p>capability have been set meaningfully. Page 10 paragraph 3 of the report explains that initial prioritisation looked at how often substances featured in permit conditions for discharges to water across the UK, which appears a pragmatic and evidence-based approach. I am pleased to see that the proposals acknowledge some of the problems associated with sampling, particularly for substances, including both metal ions and many organic compounds, which have a tendency to bind to suspended solids. To obtain data which effectively and consistently denote Ecological Status, the UK needs to mirror a growing EU realisation of the need to be specific about sampling requirements. For example, some clarification of the intended filtration procedure would be helpful in relation to diazinon (page 61, subheading 'Implementation'). In fact, I believe that a defined sampling protocol should be an explicit condition of use for standards. For many substances, including metals, a common operational definition of the dissolved fraction could relate to passage of samples through 0.45 µm filters. In other cases, specific requirements could be summarised or referenced in the final specification to be developed from Table 1 (pages 19-22). Northern Ireland was unable to assess compliance with the new standards for cypermethrin because of limits of detection (page 25). While the ecotoxicology data on page 57 appear to support the proposals for this substance, it is clear that the limits of determination derived from them according to the 'one third' rule (see page 58, subheading 'Analysis') are exceptionally demanding. Analytical scientists may need to liaise, agree and then jointly advise the environment agencies on minimum technology requirements for routine monitoring to make this standard workable.</p>	<p>in more complex sample types for the Department for Innovation, Universities and Skills (DIUS). We are also considering an authoritative study of chromium measurement and speciation, which could fit in well with the separate standards that have been identified for Cr(III) and Cr(VI) because of the difference in toxicity. We will apply relevant experience with other transition metals in accounting for the tendency of the oxidation states to interconvert during sample preparation. Environmental bioavailability, for instance as characterised by distribution between ionic, complexed and particle-bound states, is also of interest from a metrology viewpoint. I would welcome opportunities to collaborate; for example, we could adjust the project scope to look at requirements for environmental reference materials. Incidentally, it may be appropriate to revisit and confirm or clarify the statement that Cr(VI) is more thermodynamically stable than Cr(III) in surface waters (page 52, subheading 'Properties and fate in water'); I am advised that the reverse is true under many circumstances. The use of field data to improve confidence in standards based on laboratory risk assessment (page 33) shows a broad-based</p>	

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				<p>approach to the available evidence. It is reassuring that the two strands of evidence point to similar standards in most cases. In principle, mathematical models can have a stopgap role in suggesting what should be done to comply with standards where there are as yet no reliable analytical methods for low concentrations of a pollutant in environmental waters (page 14, footnote). However, the predictive value depends on the evidence base used to calibrate the model. The final version of the report could be strengthened by brief discussion of the ways in which modelling methods would be scientifically benchmarked.</p>	
29	Keith Sadler – Joint Environmental programme	Yes	<p>We agree that it is not appropriate to found EQS recommendations on the use of very large assessment factors, particularly where the resulting change in EQS/EAL from current EQSs may be so large or may result in significant change to operational practice. Such large assessment factors may result from using the European Risk Assessment Reports (RAR) toxicity reviews in conjunction with the EU Technical Guidance Document (TGD) approach to deriving PNEC in the absence of sufficient toxicity information. We agree that in general EQSs should be set primarily on the basis of long-term standards. Where necessary in order to protect against short-term or intermittent releases MAC standards should be set as 95%iles over a sufficiently long period. The use of 100%ile standards for compliance purposes should be avoided. We agree that particular care should be taken in determining an appropriate EQS where the use of large assessment factors results in a</p>	<p>TRO (Free Chlorine, Annex VIII substances) We agree that UKTAG has made use of the best available laboratory toxicity science (as referenced in the EU RAR for NaOCl). We welcome the UKTAG recommendation to retain the current UK EQS/EAL for fresh and saltwaters pending additional work. For clarity UKTAG should state the basis by which it has converted 'free chlorine' to 'total chlorine' (and how this varies with pH). We note and agree with many of the UKTAG remarks on analysis methodology. In the field detection limits of 10 µg/l cannot be achieved, with practical limits being say 20-</p>	<p>In table 1 there is no discussion of the location at which EQSs should be applied. We suggest that for definiteness, in the context of a relevant discharge, UKTAG should explicitly recommend that the EQS should apply at the edge of a site-specific mixing zone, in keeping with the approach taken in DoE circular 7/89 (Dangerous Substances Directive List II). It may also be appropriate for UKTAG to give state how the compliance of a water body is to be determined when there are defined mixing zones within it. We suggest that in determining the compliance or otherwise of a water body with EQS for WFD purposes concentrations within a mixing zone are to be ignored. It may also be appropriate to note that the extent of the mixing zone and constraints on the point discharge would be determined by regulators so that the resulting environmental and ecological</p>

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			<p>PNEC which is at or below the level of detection in field conditions. For some methods the confidence and detection limits in field measurements may be considerably different from those attainable in ideal laboratory conditions. This is relevant to the setting of a standard related to chlorine. We agree with the UKTAG position of setting EQS for the aquatic phase only. Given the difficulties inherent in using sediment and/or in biota concentrations we recommend that monitoring of sediment and biota concentrations be used for trend analysis and triggers for further investigation rather than for compliance. (p16) We also welcome the approach indicated in the UK EQS Phase 2 titled SR1-2007 Fig 2 p30 describing the action to be taken should there be a potential failure to comply with the EQS value in deriving a case-specific appreciation of the risk. In particular, we welcome the recommendation to assess the actual state of the biology before determining the need to take action within the Programme of Measures. This is particularly important in the context of substances for which the natural component may be a large proportion of the EQS but is also relevant for other substances, especially those for which the toxicity in the field may depend critically on the speciation and bio-availability resulting from local water quality and may differ substantially from that occurring in the toxicity testing which underpins the definition of the EQS. We note that some of the existing standards listed in table 1 appear not to reflect fully the current standards applying over the full hardness range and therefore do not give a complete indication of the severity of tightening of the standard. For example, in hard cyprinid designated waters the current chromium VI EQS is 250 µg/l whilst that suggested in table 1 is 50 µg/l (which currently applies to salmonid designated waters). Similarly for zinc.</p>	<p>50 µg/l. Moreover, in field conditions with natural waters interferences are common and can indicate apparent TRO of say 20 µg/l. These practical limits of detection cause issues in assessing compliance and limit the confidence in predictive modelling at and below such concentrations.</p>	<p>impacts were such that the WFD objectives would be attained in the water body outside of mixing zones. We also note that even should there be an exceedence of an EQS in and adjacent (or remote) water body, it is still appropriate for point discharges to retain a mixing zone, though its extent and the controls on the point discharges would be determined so that compliance with the EQS for the water body could subsequently be attained. Without understanding the mixing zones to be permitted for several substances it is not possible to assess the potential consequences of the proposals for some potential emissions. TRO (Free Chlorine, Annex VIII substances) We welcome the UKTAG recommendation to retain the current UK EQS/EAL for fresh and saltwaters pending additional work. We are also concerned that in applying the future EQS, care should be taken to interpret the EQS in the light of the nature of exposure of biota in field conditions. For example, the physico-chemical processes governing the mixing and decay of chlorination-derived oxidant in field conditions is such that exposure of biota would frequently be of intermittent and of short-duration (eg in the case of benthos or intertidal biota exposed to a buoyant cooling water thermal plume in tidal conditions). We note that power plant cooling water circuit chlorination has been practised for many years meeting current BAT without reports or evidence of widespread compromise of ecological receptors (see for example Langford (1990), Langford (1998)). On the contrary ecological effects associated with cooling water plumes appear to be subtle and confined largely to the immediate vicinity of the cooling water discharge. In deriving future EQS and associated mixing zone concepts we would urge UKTAG to take into account</p>

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					such evidence from field conditions as well as laboratory studies in interpreting how any laboratory-based EQS is applied in practice.
32	Janet Harris – Glasgow City Council	Yes			In the regulation of contaminated land will the proposed PNEC replace the existing EQS value as a measure of significant pollution of groundwater or surface water in terms of the contaminated land regime. In an urban environment where groundwater and surface water is already poor, the problem of assessing "significant pollution" will become even more tricky and difficult to deal with. It could lead to economic blight, as the proposed PNEC for some contaminants is lower than the existing EQS, and could be too expensive and/or difficult to achieve for some developments.
34	Anna Hall – National Farmers Union	<p><b>General Response</b></p> <p>We believe the development of the standards detailed in this consultation document follow the technical guidelines issued at EU level. However, we are concerned about some fundamental issues in using very tight standards for the Water Framework Directive. Our concerns are as follows:</p> <ul style="list-style-type: none"> <li>• Diminishing active ingredients available to deal with certain pests, disease and weeds resulting in greater use of a smaller suite of active ingredients. This can lead to: <ul style="list-style-type: none"> <li>○ Increase in pest, disease and weed resistance</li> <li>○ Possibility of increased concentrations in watercourses of remaining active ingredients (particularly if there are limits on timing for efficacy of use).</li> </ul> </li> <li>• Animal welfare needs must be considered before usage is restricted</li> </ul> <p>In addition, it is very difficult to cost things like resistance management until after resistance has occurred and it can be determined what can be done. Changing from one product to another product which is less effective is also difficult to quantify. Finally, any changes in cropping which may result from increased resistance or reduction in active ingredients again is difficult to quantify; any large scale changes will impact on market values. As there are problems in assessing these costs this makes the calculation of cost effectiveness and disproportionate costs very difficult. Further work is needed on this, and indeed on the impacts of loss of active ingredients.</p> <p>We would, therefore like a proportionate response to these standards, in terms of implementation and compliance if they are not going to be revised, working with PSD, VMD and the agricultural and horticultural industries.</p> <p><b>Detailed Response</b></p> <p>We would like to make some comments and raise queries about the development of the standards themselves, as detailed in Pages 8-15.</p> <p>Has UKTAG contacted manufacturers to obtain any confidential data, as this might increase the volume of data substantially and allow reliable use of statistical approaches to derive an HC5?</p> <p>The assessment factors used introduce a large level of increased sensitivity by changing standards by an order of magnitude or more from the NOEC or LC50</p>			

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		<p>values on which they are based. It is considered that the assessment factors for diazinon and cypermethrin as well as for plant protection products, could indeed be 1, or less than 1, if all the studies, including manufacturers' tests were included, rather than 10 or higher. It is therefore considered these values should be revised with all these studies included.</p> <p>In addition to this, the lowest value is taken from all the studies reviewed and then the assessment factor is applied. There is a danger that the lowest value may not be a study performed to good laboratory practice in a reliable laboratory. If there is ANY doubt about the scientific or regulatory reliability of such a critical data point it should be an absolute requirement to repeat the study before using it to set a mandatory EQS with serious implications for product users. We would like reassurance that this scientific rigour has provided with these EQS values or if this is not possible, a transparent review of the reliability of the key studies used to determine each EQS. There has also been no consultation on these values with industry professionals who manufacture or use these products; we consider this to be a flawed approach.</p> <p>These plant protection products and sheep dip chemicals are not naturally present in the environment and any release into the environment is related to their use, normally during discrete times of the year. Where laboratory ecotoxicological information is related to incidents in the environment this can produce very uncertain results. The impact of a chemical may be recorded within the ecology because of an acute exposure (impacts on fish fertility, for example) but the monitored concentrations of the substance in the watercourse following the incident may not bear any relation to the impact caused as the chemical has moved downstream, has been diluted and is transient in the environment. This could result in a very low concentration to be erroneously associated with ecological impact. How, therefore, does the EA propose to use an EQS for these substances when protecting the environment? Monitoring compliance with EQS for such substances, with random and unpredictable occurrence in the environment, will be very difficult on the basis of 12 samples taken annually which are then used to estimate an annual average or 95 percentile maximum allowable concentration. Also, will cypermethrin and diazinon and plant protection products be measured as dissolved concentrations or as total concentrations, including concentrations on any sediments collected in the sample? If the latter, how can such measurements be compared with toxicity values obtained from lab experiments without sediments?</p> <p>There seems to be a confused application of different assessment factors: 'reliable short term data' and 'considerable short term toxicity database' for 2,4-D gives an assessment factor of 10, whilst 'reliable short term data for cypermethrin results in assessment factors of 10 or 100. This obviously has a large effect on the final standard, changing it by an order of magnitude. Without further information, we cannot suggest whether different values should have been used but as this is one of the most sensitive values in deriving the standards, they should be justified in each of the data sheets and information should be available to help guide those not involved in the process so that if the process were repeated by another group, the same standards would be reached.</p> <p>It is not clear why freshwater values, and assessment factors have been used in saltwater environments. This needs explaining further.</p> <p>In Table 1, the proposals for standards, the 95 percentile is taken as the compliance point for short term, acute exposure. We are concerned about this as this does not take into account the allowance within the Directive for 'temporary deterioration' under Article 4 (6). A body could be wrongly classified at a lower status class because the upper 5% of readings reflect a temporary deterioration in quality. It is therefore imperative that these values are not used in classification but simply as triggers for further investigations.</p> <p>We would welcome the use of the 95% confidence level (as detailed in Table 2) over the face value compliance as it provides 95% confidence that the value exceeds the standard. This would assist justifications for further investigations or action. It is believed that this confidence interval applies to the annual mean value as detailed in Table 1.</p> <p>We very much agree that one of the programmes of measures must be further investigations where there is insufficient confidence. This is important in the context of WFD as there will be a requirement to implement a measure; making a change to their activities, infrastructure etc. which will have an associated cost. The local investigations are vital to identify the problem and also scope out the most effective solution, both in terms of cost and the environment.</p> <p>We feel particularly uncomfortable about the suggestion that modelling may be used to assess compliance with a particular standard. For the specific pollutants associated with agriculture, there are too many variables, including soil type, crop type, weather patterns, cultivation techniques as well as all the chemical properties to enable broad brush assumptions through modelling. Figure 2 attempts to explain how risk can be refined using all available evidence but it is not clear how a high level or low level of confidence will be determined, this must be clarified.</p> <p>It is mentioned that there may be case where substances are used or released for short periods and that this occurs for pesticides. We would like to exercise caution in this premise as active ingredients are often used for many different uses, including amenity uses and concentration sampling effort over a specific period of time may certainly bias the results as well as being inaccurate.</p>			
35	Alistair Taylor, Department of business enterprise			There are several instances in the report where despite the best information suggesting current standards are too severe, it is proposed not to relax them because of the "no deterioration principle". Please confirm that by adopting more stringent standards now, or introducing standards for additional pollutants, the UK is not placing itself at a disadvantage and would be able to relax these standards if better	

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	and regulatory reform			<p>toxicity evidence is produced, other Member States are found to have adopted less stringent national standards, or the EU subsequently adopts less stringent standards. If standards may only be retained or tightened, then further evidence should be obtained so that they can be set more accurately. Yes. Section 3 on page 12 proposes that groundwater should be reported as having good status where there is insufficient monitoring evidence to make an assessment. However Article 4(1b) of the WFD requires Member States to both control the input of pollutants to groundwater, and PREVENT DETERIORATION IN STATUS, subject to some considerations. Therefore would classifying water bodies above the level justified by monitoring evidence create additional pressures for the UK when monitoring evidence does become available?</p>	
36	Colin Taylor, British Energy				<p>The technical document on chlorine (free available) would appear to omit an understanding of chlorine chemistry in estuarine &amp; coastal waters where a bromine rather than chlorine chemistry is predominant. Nor does it capture an understanding of the chlorination byproduct fluxes involved and their impacts (which may indeed substantiate the (in a historical context superficially surprising)suggestion that they are largely not an issue) or many other papers that have been produced over the years associated with the use of 'chlorine' as a fouling control agent at coastal and estuarine power stations. The references listed behind Taylor, 2006; The effects of biological fouling control at coastal and estuarine power stations; Marine Pollution Bulletin 53, 30-48 may be useful in this regard. The authors are correct to be concerned that the standards suggested challenge the capability of current instrumentation - but they should be equally concerned over the meaningfulness of these particular oxidant levels in natural (estuarine and coastal) waters where other sources of oxidants may confound matters: no indication is given in the document as to the natural sources of variance in this parameter. From past experience, there are grounds for suspicion that in at least some instances the toxicity tests that have been used to derive these</p>

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					extremely low standards did not employ 1:1 flow-through systems but perhaps sought to maintain a consistent residual oxidant level with at least some degree of recirculation or a relatively low flow-through: in such circumstances CBPs can build to toxic levels and a false positive result may be obtained.
37	Robert Ferrier – Macauley Institute				<p><b>Dimethoat</b> (p. 62-65): In a recent Danish study dimethoat was shown to have almost no effect on a number of different stream macroinvertebrates including the crustacean <i>Gammarus pulex</i> (most sensitive) that showed LC50 (96 hrs) values &gt; 1 mg/L dimethoat and no indirect effect on feeding behaviour when concentrations were &gt; 2 mg/L. The data is available is reported in :  <i>(Møhlenberg, F., Schlüter, L., Gustavson, K., Andersen, T.T., Forbes, V., Cold, A., Friberg, N., Larsen, S.E. &amp; Lauridsen, R.B. 2004: Effekt af bekæmpelsesmidler på flora og fauna i vandløb. Miljøministeriet. - Bekæmpelsesmiddelforskning fra Miljøstyrelsen Nr. 82: 134 s.can be downloaded <a href="http://www.mst.dk">http://www.mst.dk</a>. (Danish with English summary and conclusion)).</i></p> <p>In light of these results the very low limits set might be revised. Overall, the vast amount of studies on dimethoat will show that it is not very toxic when dissolved in water.</p>