Qualified Experts for Radioactive Waste Management

Consultation Response Document

NIEA Northern Ireland Environment Agency
www.ni-environment.gov.uk

SEPA Scottish Environment Protection Agency

Environment Agency Asiantaeth yr Amgylchedd

Contents

1 Acknowledgements

1.1.1 The environment agencies wish to thank all those that responded to the Qualified Expert consultation exercise and participated in the post-consultation workshop on 8th March in Leeds. All respondents were invited to attend this workshop. Feedback has been constructive, thoughtful and thorough and will help improve the content and resilience of the resulting Qualified Expert scheme.

2 Executive Summary

2.1.1 This document contains a summary of the responses that were submitted as a result of the 2010 consultation undertaken by the UK environment agencies on "Qualified Experts for Radioactive Waste Management". The number of respondents is presented along with a break down by sector. It contains an overview of the responses received and whilst it does not present every comment and issue raised it does list and address some of the specific points raised.

2.1.2 Notwithstanding the various issue raised, the document illustrates that on the whole respondents responded to the proposals positively. The document indicates what actions the environment agencies have taken or are taking to address the specific comments raised and states that the next step is to publish a formal Policy Statement in May 2011.

2.1.3 There is already a requirement for holders of permits to accumulate or dispose of radioactive waste to appoint qualified experts or suitable Radiation Protection Advisers for each of their permits. The proposals in the consultation were not proposing any additional requirements, but sought to improve the clarity with which the environment agencies administer this requirement. Following the consultation we have concluded that it is appropriate to develop and implement our proposals.

3 Introduction

3.1.1 The UK environment agencies have been reviewing the arrangements in place that satisfy Basic Safety Standards Directive requirements in relation to "Qualified Experts" for a number of years. This review which included the commissioning of a report[1] and numerous stakeholder workshops culminated in the publication of a consultation document in October 2010 "Qualified Experts for Radioactive Waste Management: A consultation by the UK environment agencies". This document is a consultation report in response to that consultation. It contains an overview of the responses received and whilst it does not present every comment and issue raised it does go into some detail. Where it has been practicable to do so the document includes a response from the environment agencies to the comments raised.

3.1.2 Whilst this consultation report can be read on its own it does pre-suppose a familiarity with the 2010 consultation. This document should therefore be considered to be a companion to the 2010 consultation and should be read in conjunction with it.

3.1.3 The consultation response form was designed so that responses to the 20 propositions contained in the consultation document could be analysed on a semi-quantitative basis. Respondents were asked to indicate whether they (1) strongly agreed, (2) agreed, (3) neither agreed nor disagreed, (4) disagreed or (5) strongly disagreed and to supplement this with additional information or comments. The responses allowed an overview of the broad level of agreement whilst the additional commentary provided us with an insight into why a respondent agreed or disagreed or in many cases made suggestions to improve our proposals. The numerical data is presented in this report together with a summary of the comments and issues received.

3.1.4 The consultation responses were analysed on a proposition by proposition basis and are presented as such in this report.

[1] UKRSR10: Radioactive Substances Act 1993 and Qualified Experts (2007), SNIFFER

4 Overview of responses

4.1 Who responded?

4.1.1 The environment agencies received 51 responses to the consultation. The responses were subdivided into three sectors, nuclear, non-nuclear and other. Other consisted of government bodies, professional societies and individuals or organisations that could not easily be assigned to either nuclear or non-nuclear because they could work in either sector or neither. Table 1 gives the number of responses from each sector. Of the 51 respondents 47 completed the response pro-forma.

Table 1

Category	Number of respondents
Nuclear	**15**
Non-nuclear	**17**
Medical	9
Academic	8
Other	**19**
Consultant	6
Non Departmental Public Body	6
Professional Society	2
Other	5
TOTAL	**51**

4.1.2 The table illustrates that the responses provided a representative view across the radioactive substances user community. We were satisfied that the number of respondents indicated a sufficient response from the regulated radioactive substances community.

4.2 Summary of responses

4.2.1 Figure 4.1 shows the responses for all 20 propositions.

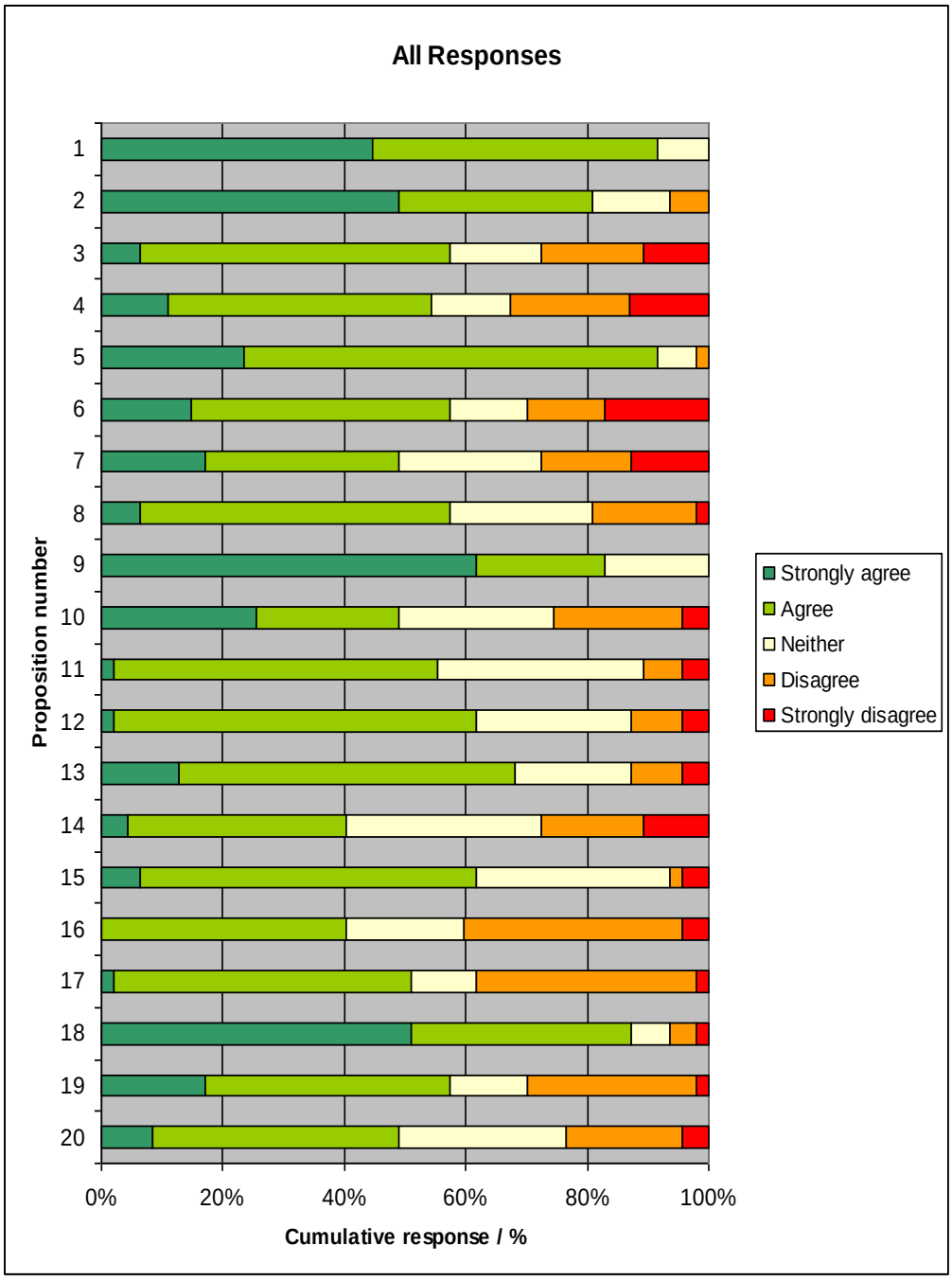

Figure 4.1 All responses

4.2.2 Whilst it was evident from the consultation responses that our proposals require further refinement we were pleased that in general the consultation responses were positive. The extent of agreement

varies between the different propositions, the responses are considered on a proposition by proposition basis so that the reasons supporting any disagreement can be understood.

4.2.3 The supporting comments usually fall into one of three following categories:

- A misunderstanding of our proposals
- A mistake in our proposals
- Further thought is required to address the issues

We have not grouped the comments this way in this document, but where possible we have tried to address misunderstanding via distribution of further documents and the presentations at the Leeds workshop and in this response document. Similarly we have corrected the errors that have been brought to our attention. In relation to the issues that require further thought, some of these were discussed at the Leeds workshop and this document provides an update as to our current thinking.

5 Detailed analysis

5.1 Proposition 1 – "There are benefits in clarifying the expectations of the environment agencies on Qualified Experts"

5.1.1 The overall response to this proposition was very positive. As illustrated in Figure 5.1 no respondent disagreed with the proposition that there are benefits in clarifying the expectations of the environment agencies on Qualified Experts.

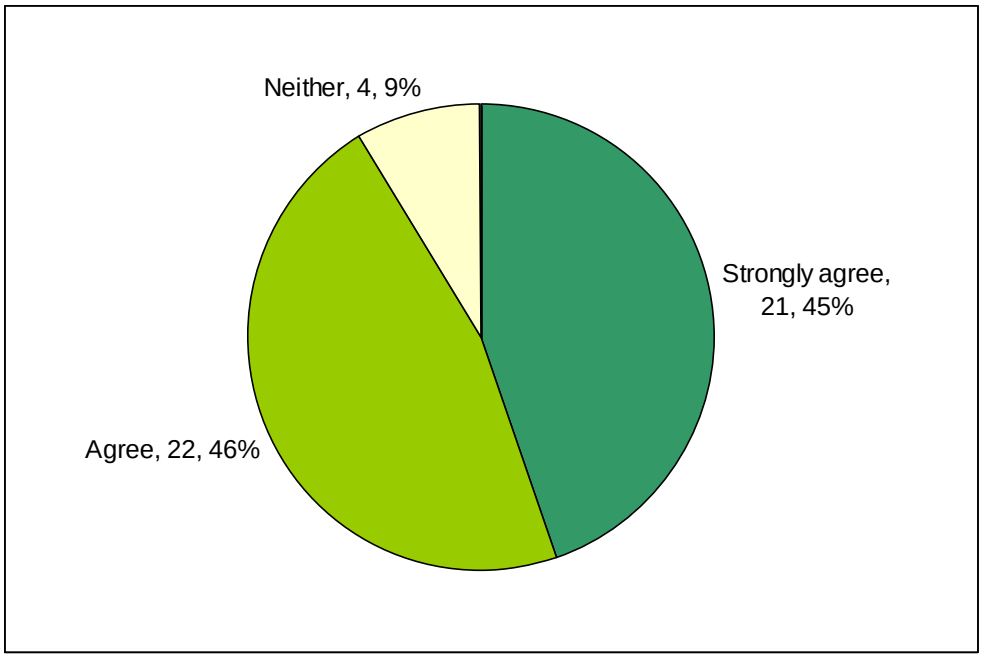

Figure 5.1 Proposition 1. The figures next to the labels are the number and percentage of individual responses in each category.

5.1.2 Although there is comprehensive agreement that the proposal to clarify our expectations is a benefit a number of respondents made comments that this clarity should not come at the expense of disproportionate costs, both financial and administrative, on the regulated community. We agree that our proposals should not impose undue burden on the regulated community and therefore have decided to undertake and publish an Impact Assessment to ensure this is the case before proceeding with these proposals. The preliminary Impact Assessment was presented and discussed at the Leeds workshop and further comment was invited. In view of the

comments received we believe that the Impact Assessment was reasonable and will publish it in due course.

5.1.3 Some respondents asked if there was any evidence that a problem exists with the current system with the implication that the recent proposals are unnecessary. We do have evidence of a poor understanding of our requirements by some operators and users and inconsistencies in approach both across and within the environment agencies. The diversity and content of the responses received to this consultation also demonstrate that there is a poor understanding in the regulated community of what we expect of qualified experts. Our proposals are designed both to remove current problems and improve standards.

5.1.4 Several respondents thought that the role of a qualified expert was still not clear and one response stated that it would also be useful to make our expectations on permit holding organisations clear as well as on individuals acting as qualified experts. To address these points and related issues that have been raised in response to the consultation, we will produce guidance that will form part of our Policy Statement on qualified experts that spells out our expectations of both qualified experts and permit holders. The first draft of this guidance was presented at the Leeds workshop and forms Annex 1 to this response document.

5.1.5 A number of respondents asked whether or not sealed source users and organisations operating under the exemption regime need to appoint and consult QEs. As stated in para 5.5.3 of the consultation document we do not require sealed source users to appoint and consult QEs, although we are certain that QEs would be the best source of advice. Similarly there is no requirement for businesses operating exclusively under the exemption order to appoint a QE. We will make these points clear in our guidance on the role of a QE.

5.1.6 At the Leeds workshop there appeared to be a view from attendees that we should require sealed source users to consult QEs. In response to this view we will keep our current position under review and reconsider alongside the requirements of the proposed Basic Safety Standards Directive.

Conclusion

5.1.7 There are benefits in clarifying our expectations. Some additional areas of clarification have been highlighted by stakeholders; as a result we will provide guidance on the role and responsibility of qualified experts and permit holders which will form part of a joint agencies statement on qualified experts.

5.2 Proposition 2 – "Experience is a key component of competence"

5.2.1 Only three respondents (Figure 5.2) disagreed that experience was a key component of competence, but the supporting comments suggested that two of those disagreed with how we proposed to incorporate experience into the scheme rather than the concept itself. The remaining response referenced a definition of competence given in ISO/IEC 17024, which states that *"Competence is the "demonstrated ability to apply knowledge and skills"*. In our view skills can only be gained by experience. We do not see a conflict between these definitions; indeed we would argue that experience is a key mechanism by which an individual can demonstrate that they can apply their knowledge and skills.

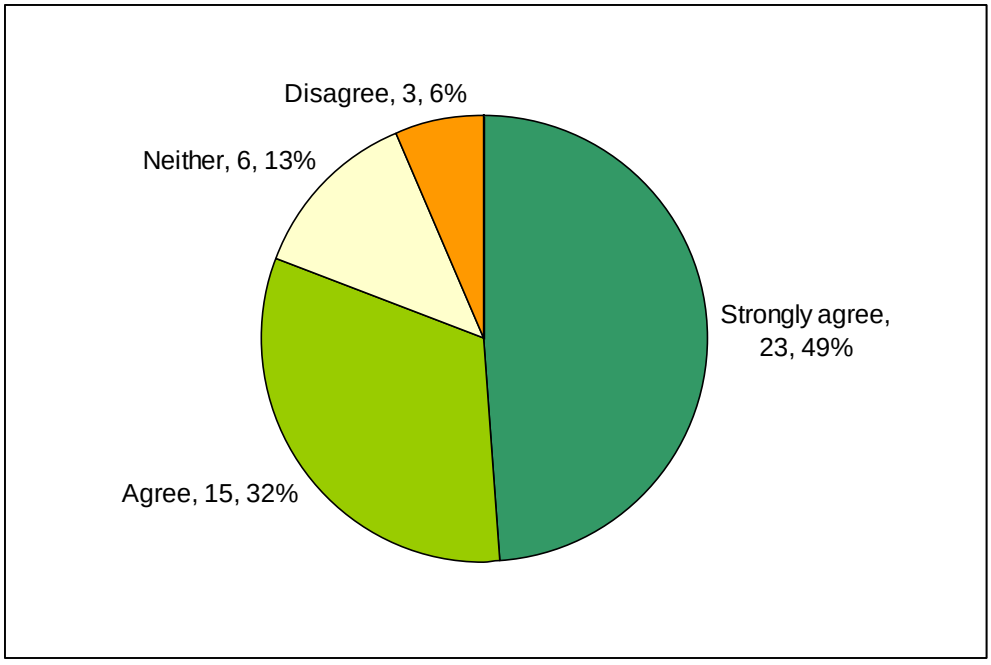

Figure 5.2 Proposition 2; the figures next to the labels are the number and percentage of individual responses in each category.

5.2.2 A number of respondents expressed concern that it may be difficult to demonstrate the experience required by the proposed syllabus. These concerns are discussed under proposition 6.

5.2.3 Two respondents stated that experience should be a measure of suitability for the employer. We consider that suitability is about more than just experience but we agree that experience is a factor that an employer should take into account when determining if a QE is suitable. However, we also believe that it is necessary that all QEs must have a defined level of experience.

5.2.4 One respondent warned against creating a situation of only being able to gain experience whilst working as a QE and therefore preventing anyone not acting as a QE from getting experience. We do not believe this problem will arise as we do not anticipate any change to the practice of a trainee being able to gain appropriate experience whilst working under the direct supervision of a QE who is undertaking formal advice work for the employer.

Conclusion

5.2.5 It is agreed that experience is a key component of competence and therefore it will feature in the future QE scheme.

5.3 Proposition 3 and Proposition 4 – Scope and detail of syllabus

5.3.1 Proposition 3 and 4 are being dealt with together in this response as there is significant overlap in the responses.

Proposition 3 –"The proposed scope of the competence framework is appropriate to the role of an adviser to employers on radioactive waste management and environmental radiation protection"

Proposition 4 – "The Syllabus fully describes the knowledge and experience requirements of a Qualified Expert"

5.3.2 The majority of respondents agreed that the scope and detail of the syllabus were appropriate; however there were a significant number of respondents who did not agree. The supporting comments of those that disagreed, and in some cases those that agreed, ranged from "the syllabus contains too much detail and requires too much" to

"the syllabus does not go far enough". We believe that many of these concerns, particularly those that suggest we should go further in the syllabus, result from a poor understanding of our expectations of a QE. We have tried to address this by providing additional guidance and exploring this at the Leeds workshop.

5.3.3 Notwithstanding our response in paragraph 5.3.2 we acknowledge the syllabus we consulted on did contain some mistakes and required further review. We have undertaken a review of the syllabus having regard to the consultation responses received. This revised syllabus is attached to this document (Annex 2) and was presented at the Leeds workshop. As a result of the workshop, we recognise that further review is still required and will consider the comments received following the workshop carefully before finalising the syllabus.

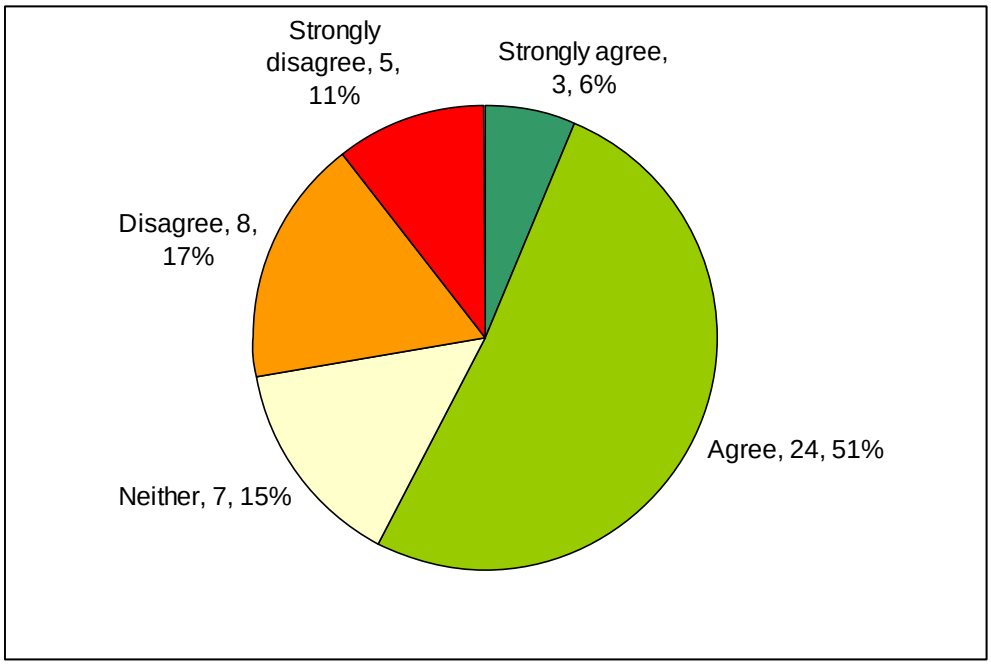

Figure 5.3 Proposition 3; the figures next to the labels are the number and percentage of individual responses in each category.

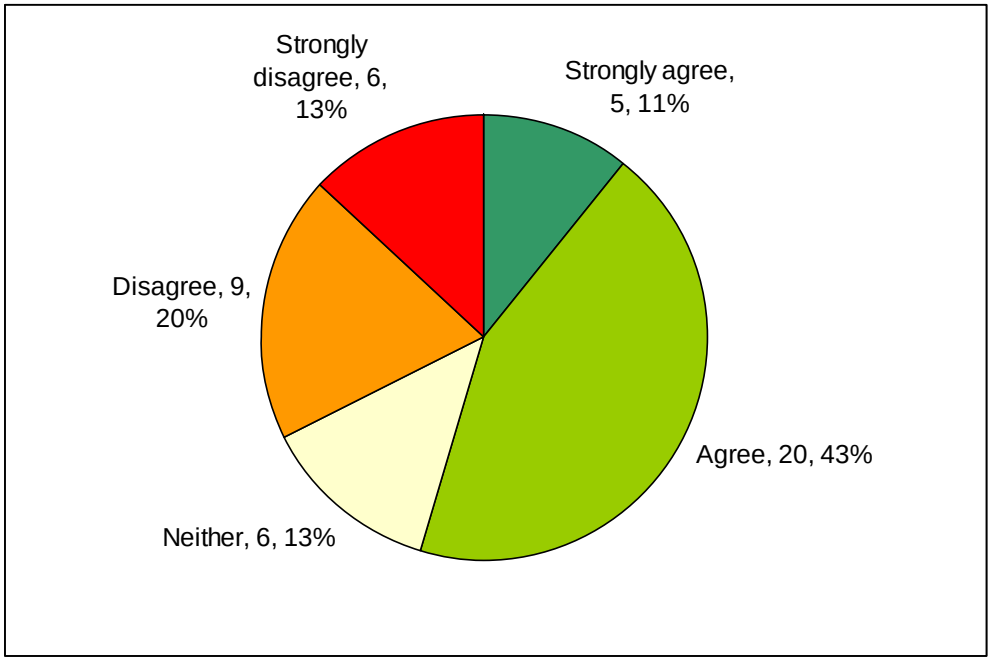

Figure 5.4 Proposition 4; the figures next to the labels are the number and percentage of individual responses in each category.

5.3.4 In addition to the general comments regarding the scope and detail many respondents sent in specific comments in relation to the content of certain topics and the level of understanding that was required, or that they believed that certain topics had been omitted from the syllabus. We have reviewed all of these comments carefully and made changes to the syllabus where appropriate. Several further key comments are discussed below.

5.3.5 Several respondents stated that they thought that the syllabus missed a requirement to have competence in wider environmental protection and non-radioactive waste management. As our proposals are developed to satisfy the radiation protection requirements of the BSSD we not believe that it is appropriate to require a QE to be an expert in wider environmental protection. However, we feel that a QE should have a general awareness of this topic so that they know when further advice should be sought; as a result we are considering adding this to the syllabus. Our position does not preclude an employer from making such expertise the requirements of a job – but it is not a requirement to become a Radioactive Waste Adviser.

5.3.6 One respondent argues that a QE should be focused on optimisation not radiation protection. We would respond by highlighting that optimisation and radiation protection cannot be separated as

optimisation is a fundamental component of the system of radiation protection. This is illustrated by the BSS specifying that a QE should be concerned with "achieving and maintaining an optimal level of protection…".

Conclusion

5.3.7 The syllabus is broadly acceptable but further refinement is still required to ensure that all concerns and issues raised have been appropriately addressed. We are in the process of carrying out this final review which will be complete prior to publication as part of our QE Policy Statement.

5.4 Proposition 5 – "The adoption of the GA, BU, DU approach is appropriate"

5.4.1 As can be seen in Figure 5.5 there was very strong support for the proposal to adopt the GA, BU, DU approach to expressing levels of competence. Only one respondent disagreed, this was because the respondent expected their expert advisers to have a detailed understanding of all areas on which advice was being sought. Whilst we accept that this may be true for any individual expert that is giving advice on any given particular topic, we do not accept that a QE has to be an expert in every area of our specified syllabus and believe that suggesting this stems from a misunderstanding of our expectations of a QE.

5.4.2 We have set out these expectations more clearly in Annex 1. There were no objections to this guidance raised at the Leeds workshop and feedback received afterwards indicated that the guidance was helpful and did clarify our expectations.

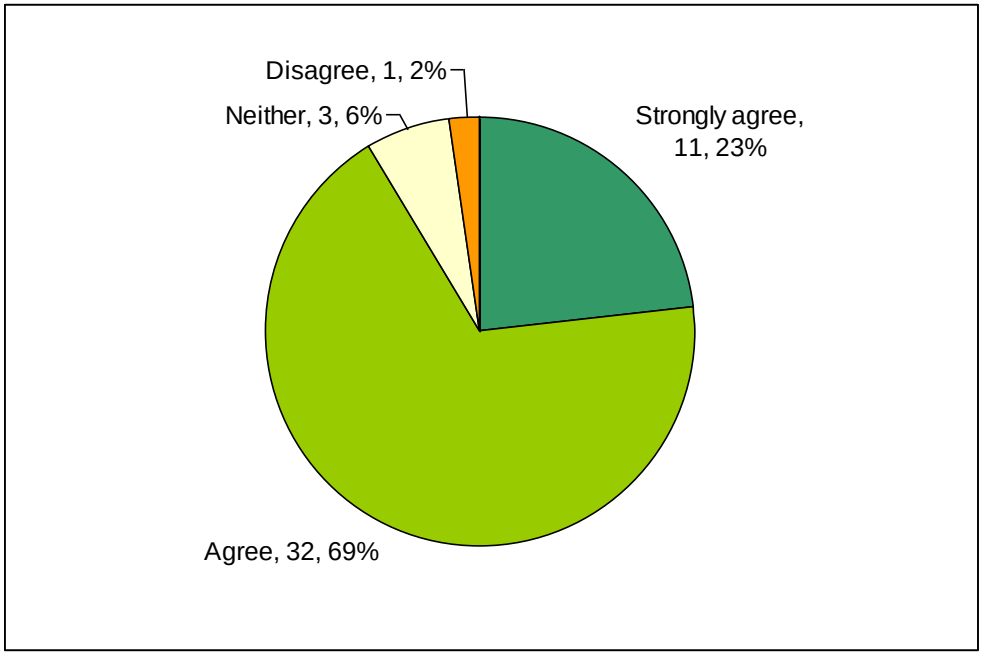

Figure 5.5 Proposition 5; the figures next to the labels are the number and percentage of individual responses in each category.

5.4.3 Some respondents thought that further clarification would be helpful regarding the definitions of GA, BU, DU; this was also raised at the Leeds workshop. We are looking into how best to improve the definitions based on the feedback received, bearing in mind these terms are used in other schemes and we wish to maintain consistency where possible.

Conclusion

5.4.4 The GA, BU, DU approach to quantifying competences will be adopted in our framework. Some further work will be undertaken in order to try and improve the associated definitions.

5.5 Proposition 6 – "The three levels of experience proposed are appropriate"

5.5.1 There was a mixed response to this proposition (Figure 5.6). Whilst the majority of respondents agreed that the proposal was appropriate 30% disagreed.

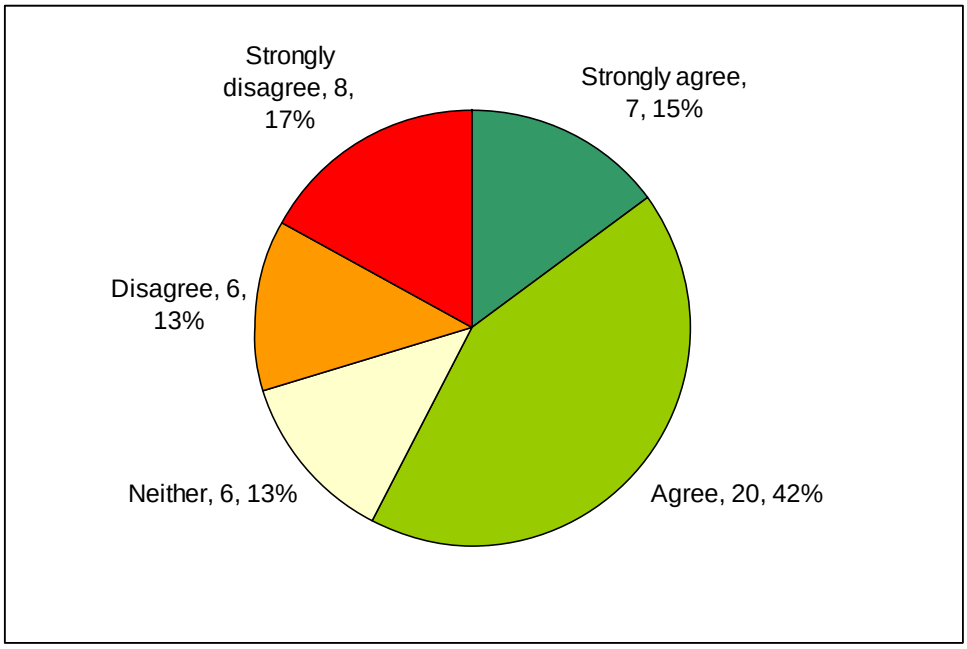

Figure 5.6 Proposition 6; the figures next to the labels are the number and percentage of individual responses in each category.

5.5.2 Examining the written responses it is apparent that many respondents thought that including three levels of experience in addition to the three levels of understanding unnecessarily complicated the scheme.

5.5.3 A common concern was also that it would often be difficult to demonstrate the higher level of experience in topics where there is little opportunity to gain experience and that the distinction between level 1 and level 2 experience is not always clear cut.

5.5.4 In responding to these concerns we wish to make it clear that experience was never intended to be a separate requirement over and above the demonstration of understanding. Rather it was our intention to clarify that to achieve a certain level of understanding in specified topics it is always necessary to have some practical experience. This had the benefit of identifying those topics where no experience was necessary.

5.5.5 Taking into account the responses to the consultation we have decided to simplify the experience requirement by specifying only whether experience is required or not. This revised approach was presented at the Leeds workshop. Comments made during and subsequent to the workshop suggest that this is welcomed, but there may be further scope for simplification by only requiring experience

when a detailed understanding is required. We are considering this suggestion.

5.5.6 A couple of respondents thought that experience should be defined by length of service in a relevant role. We disagree with this suggestion as we think quality of experience is a better indicator of competence rather than quantity.

5.5.7 Some respondents also thought that experience was more a measure of suitability and should therefore be determined by the employer. We agree that experience is a key factor that allows an employer to determine suitability; however we also think it necessary that a minimum level of experience is required for anybody to be a competent QE.

Conclusion

5.5.8 We have modified our proposals to take into account concerns raised during the consultation. Experience will still feature as part of the scheme but it will now simply be a statement of whether experience is required or not. We are in the process of considering whether the proposal can be simplified further.

5.6 Proposition 7 and Proposition 18

5.6.1 Proposition 7 sates that “There is a high degree of alignment between the RPA and QE syllabuses and so the effort required to “extend” an RPA to a QE is likely to be tolerable”. Similar to proposition 5, there was a mixed response to this proposition. There are 2 groups of comments that underpin the responses of those that disagree.

- Concern that the syllabus is too prescriptive and detailed to allow the extension from RPA to be “tolerable”; and
- That the high degree of alignment is inappropriate as the roles of a QE and RPA are not the same and that the high degree of alignment achieved is because the scheme was designed this way.

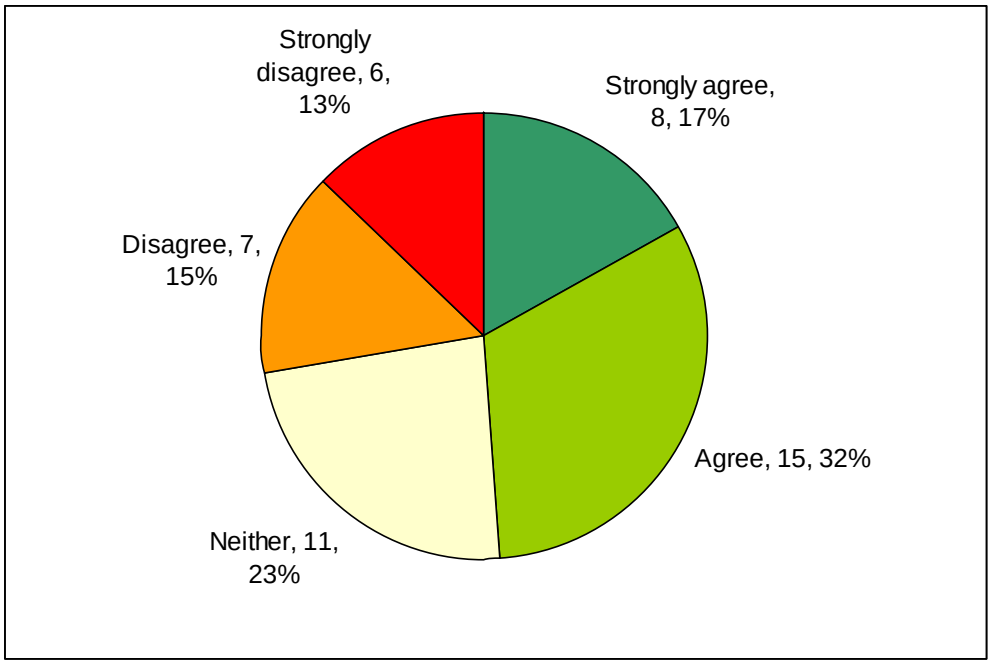

Figure 5.7 Proposition 7; the figures next to the labels are the number and percentage of individual responses in each category.

5.6.2 The concern raised in the first point has already been addressed in Section 5.3. We have reviewed the syllabus and continue to do so to ensure that it is set at an appropriate standard. We are satisfied that these changes address the concerns raised and will minimise the burden on those individuals who are RPAs who wish to be QEs.

5.6.3 In relation to the second point we re-iterate the point made in the consultation document that the QE scheme is based on the QE syllabus provided in EC Communication 98/C 133/03. The RPA syllabus is also based on this syllabus, hence the high degree of alignment. Both roles, QE and RPA, are fundamentally radiation protection experts as defined in the BSS. One specialises in protections of workers, whilst the other specialises in the protecting the public and the environment from the consequences of radioactive waste management.

5.6.4 Additionally, in relation to this point it is also worthwhile considering the responses to proposition 18, “It is appropriate that a certified RPA should be given credit for their RPA competences when they are considered for Qualified Expert Status”. As can be seen in Figure 5.8, 88 % of respondents agreed that this was appropriate. With this in mind we are satisfied that having similarities between the schemes is

appropriate and that it is right to find a mechanism that allows credit to be given for RPA competences.

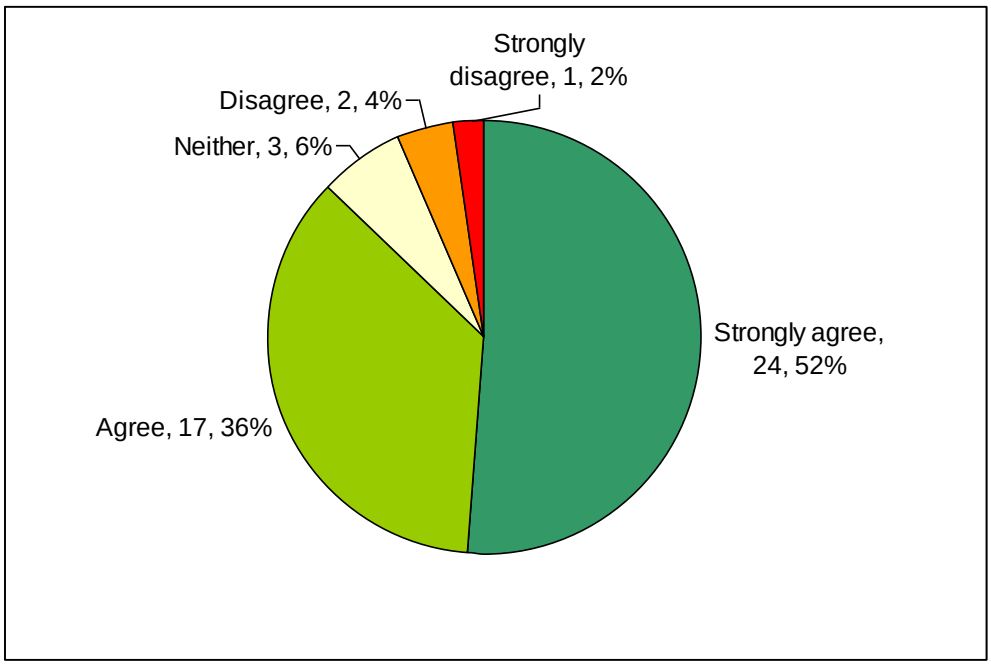

Figure 5.8 Proposition 18; the figures next to the labels are the number and percentage of individual responses in each category.

5.6.5 Other comments raised in relation to proposition 7 are given in the following three paragraphs along with our response to them:

5.6.6 That it should be equally possible to extend from a QE to an RPA. We see merit in this statement and will explore it further with interested parties.

5.6.7 There is no evidence that extension from RPA to QE will be tolerable as the RPA scheme does not require evidence of experience like the proposed QE scheme. We do not accept this point as it is our understanding that the RPA scheme does require demonstration of experience and that this criterion is applied by the Assessing Body. It is to avoid such confusion that we took the decision to explicitly state this in our scheme.

5.6.8 There were several comments regarding the detail of how getting credit for RPA accredited skills will work in practice. Where possible, we will address these comments in our guidance to Assessing Bodies.

Conclusion

5.6.9 Concerns were raised that questioned whether or not the burden of extending from an RPA to a QE really is "tolerable". We have addressed these concerns in order to minimise this burden. There is also a strong agreement to our proposal that Assessing Bodies should give RPAs credit for their RPA competences. In order to facilitate this we will include this in our guidance to Assessing Bodies.

5.7 Proposition 8 – "The clarification of the competences of a Qualified Expert and the proposals to leave the decision about suitability with the employer will result in increased clarity and improved consistency"

5.7.1 The main issue in response to this proposition was that it was both disproportionate and inappropriate for the permit holder to have to provide the regulator with written evidence on suitability every time they appoint a new qualified expert.

5.7.2 We regret that the consultation document did not properly reflect our views on this matter. It is the case that employers are responsible for ensuring their qualified experts are suitable. We will not require routine submission of evidence that demonstrates that this is the case. However, like any other permit requirement we will make periodic checks to ensure that the condition is being complied with during our regular inspections. This could include checking that appropriate procedures are in place and asking the employer to demonstrate why they consider their QEs to be suitable.

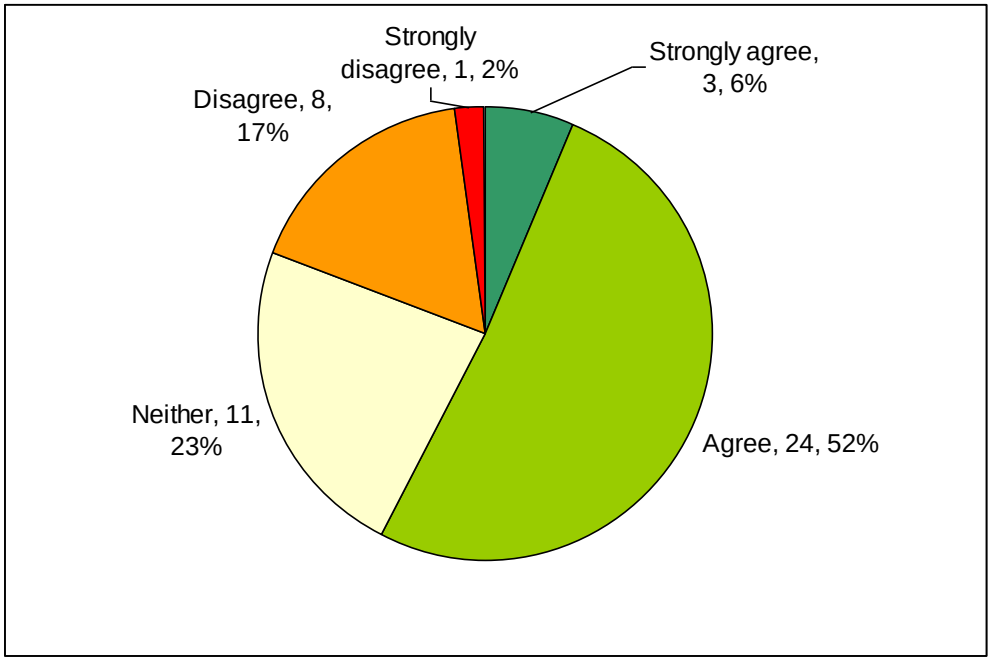

Figure 5.9 Proposition 8; the figures next to the labels are the number and percentage of individual responses in each category.

5.7.3 This position was presented and discussed at the Leeds workshop where it appeared to be accepted and welcomed.

Conclusion

5.7.4 It is widely accepted that decisions on suitability are the responsibility of the employer and that permit holders must put in place arrangements to ensure that any QEs they appoint are suitable. These arrangements may be scrutinised as part of the routine inspection process.

5.8 Proposition 9 – "It will be beneficial if all three environment agencies take a similar approach to assessing suitability"

5.8.1 No one disagreed with the proposition that that the environment agencies should take a similar approach to assessing suitability. However several respondents did question if this proposition made sense if it was the permit holder's responsibility to assess suitability. As noted above, the consultation document was not clear on our position with regards suitability and this is reflected in this proposition. The environment agencies may from time to time test a permit holder's assessment of suitability, similar to the way they may test

compliance with any other permit condition. With this in mind it would have been more appropriate to propose that "the environment agencies adopt a similar position on how suitability should be assessed."

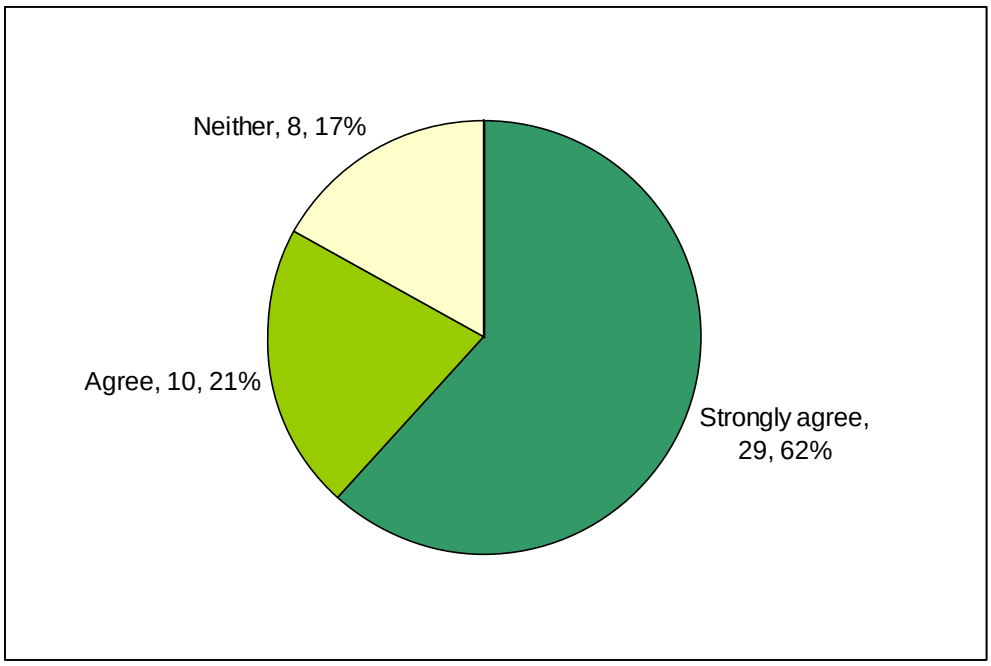

Figure 5.10 Proposition 9; the figures next to the labels are the number and percentage of individual responses in each category.

Conclusion

5.8.2 The environment agencies will adopt a consistent position on how suitability should be assessed and who should make this assessment. It is clear that the permit holder should make this assessment. We will issue our draft guidance on suitability and will include additional material that will suggest factors that should be taken into account when deciding if a candidate QE is suitable.

5.9 Proposition 10 – "It is not appropriate for the environment agencies to prescribe a re-assessment process - that should be left to approved Assessing Bodies"

5.9.1 There was a diverse response to the proposal that the detail of a QE re-assessment process should be left to Assessing Bodies. Whether respondents agreed or disagreed there was a consistent message that the re-assessment process should not be left entirely in the

hands of the Assessing Bodies, it should follow a framework put in place by the environment agencies.

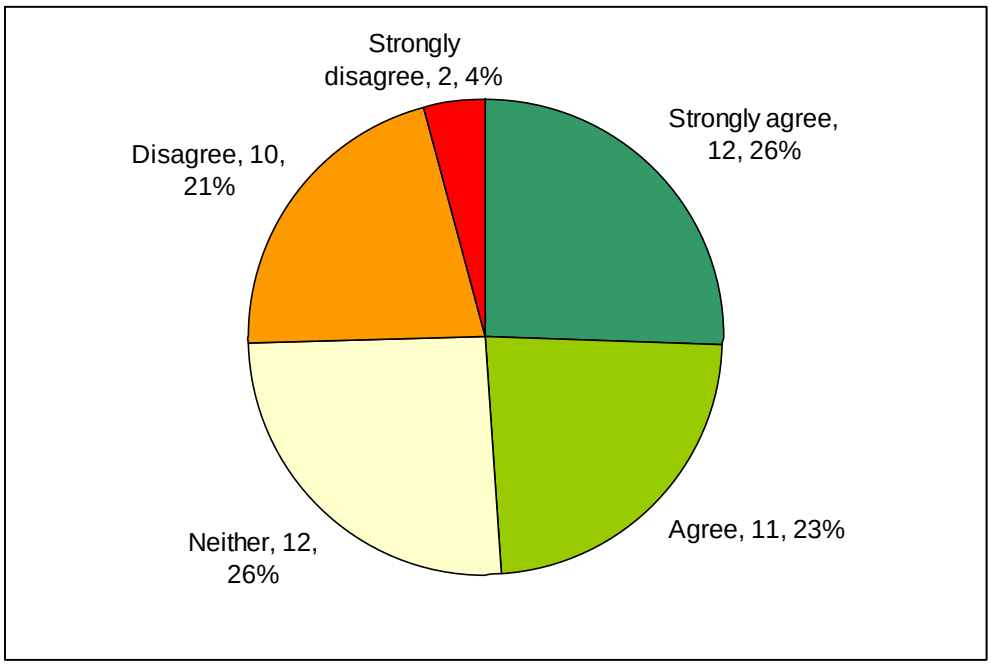

Figure 5.11 Proposition 10; the figures next to the labels are the number and percentage of individual responses in each category.

5.9.2 It was thought that a framework was required to address the following issues:

- Providing a framework is consistent with the environment agencies developing the rest of the scheme
- To achieve consistency where there is more than one Assessing Body
- To achieve consistency with self assessing corporate arrangements
- To ensure that re-assessment remains “light touch” and does not incur disproportionate costs and effort

5.9.3 We accept these points and agree that we need to develop guidance that Assessing Bodies should follow when developing their re-assessment process. This should maintain consistency but allow the independent Assessing Bodies to find practical ways to implement it.

5.9.4 Several respondents suggested topics that should be included in the environment agencies' guidance on re-assessment;

- Guidance should not be limited to the lifetime of accreditation but should include guidance on scope and process of re-accreditation
- It should specify types and amount of evidence required for re-accreditation, in particular it should be based on keeping up to date with recent developments and on continuous professional development (CPD)

5.9.5 We agree that our guidance should not be limited to the lifetime of a certificate and that re-accreditation should be based on CPD as re-accreditation is about demonstrating and maintaining competence.

5.9.6 A few respondents commented that EURATOM does not require re-accreditation and that furthermore 5-yearly, re-accreditation is an unnecessary burden. It was also noted that there are now a number of roles that require re-accreditation, e.g. RPA, LPA, DGSA, QE and that this was becoming too burdensome.

5.9.7 In response to the point that re-accreditation is not required by EURATOM we note that the BSSD provides a framework for radiological protection and is not always prescriptive on how its requirements need to be fulfilled. In the case of recognising qualified experts it is a requirement that the necessary arrangements are put in place. We consider that it is both necessary and best practice to require some form of re-accreditation. Only through re-accreditation can good quality advice from certified QEs be assured.

5.9.8 The proposal for 5-yearly re-accreditation is also benchmarked against other similar schemes, such as those mention in 5.9.6. We are therefore content that this timescale is appropriate.

5.9.9 We are unable to take action to reduce the number of different accreditations an individual may need to hold. However, we believe that there is likely to be scope for individuals holding RPA and QE accreditation to renew these certificates at the same time. The practicalities of this are a matter for the Assessing Body but we would encourage them to investigate this possibility.

Conclusion

5.9.10 There is good support for the Assessing Bodies being responsible for a re-assessment process based on guidance provided by the environment agencies. We will develop this guidance as part of our Policy Statement. The implementation of this guidance and execution of the re-assessment process will be reviewed by the Approval Board.

5.10 Proposition 11 – "The proposed level of prescriptiveness for the environment agencies Approval Board for Assessing Bodies is appropriate"

5.10.1 The majority of respondents agreed with the proposed level of prescriptiveness for Assessing Bodies, but many people considered that there was insufficient detail to comment.

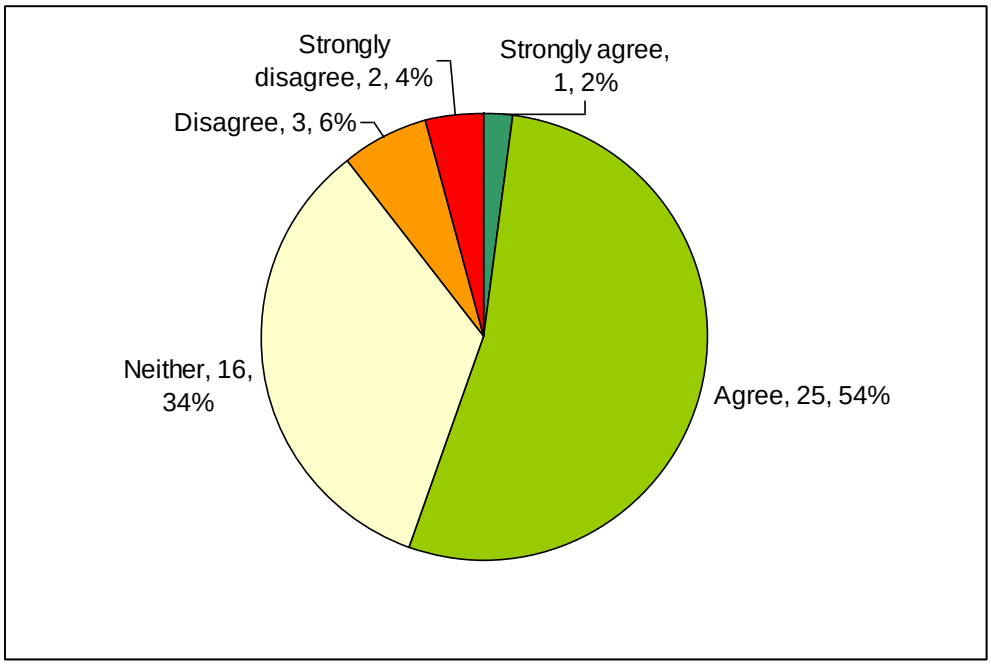

Figure 5.12 Proposition 11; the figures next to the labels are the number and percentage of individual responses in each category.

5.10.2 We will publish guidelines for candidate Assessing Bodies in due course and will update and clarify these as required once discussions with candidate Assessing Bodies have taken place.

Conclusion

5.10.3 It was agreed that the level of prescriptiveness was appropriate.

5.11 Proposition 12 – "The proposed scope of interest of the Approval Board is appropriate"

5.11.1 The majority of respondents either agreed that the scope was appropriate or had no comment. Some of those that disagreed felt that the proposals as a whole were overly bureaucratic and would not result in improved advice from QEs. We do not accept this and believe that the scheme will be implemented in a proportionate and pragmatic manner with a minimum of bureaucracy whilst improving the understanding of the role of a QE and the quality of advice that they provide.

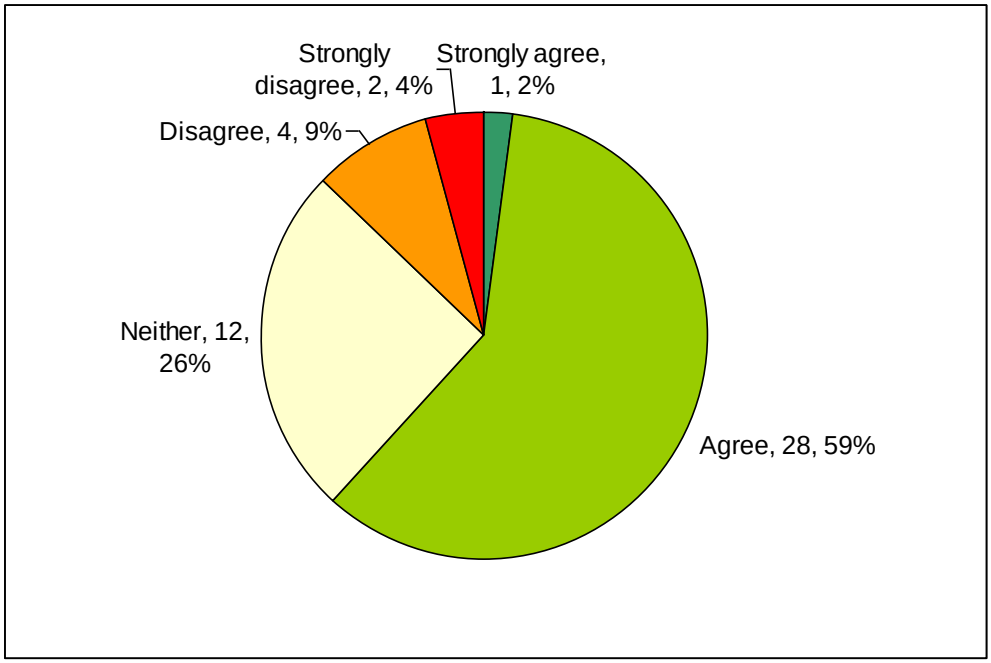

Figure 5.13 Proposition 12; the figures next to the labels are the number and percentage of individual responses in each category.

5.11.2 Some respondents disagreed because they thought that the scope of the Approval Board was lacking in several areas, namely it should:

- Oversee the development and maintenance of the certification scheme
- Provide a focus for resolving issues and problems that arise during implementation and early years of implementation
- Include auditing of Assessing Bodies to ensure consistent application of framework

5.11.3 We will look at these suggestions and incorporate them into the Approval Board's scope of interest, which we will publish as part of our Policy Statement. In particular, we agree that the Approval Board will take an interest in the ongoing operation and maintenance of the certification scheme to ensure that it remains fit for purpose and proportionate, by auditing.

5.11.4 A number of respondents questioned why there was no provision for a QE body similar to the arrangements for an RPA body, stating that this omission was detrimental to the proposals. This issue was also raised at the Leeds workshop.

5.11.5 We have considered the possibility of QE bodies carefully and have decided that QE bodies will not form part of our QE proposals. Whilst we recognise the merits of the peer review process that takes place in an RPA Body we consider that there are drawbacks in that not all individuals interacting with the customer are necessarily accredited RPAs. Written advice is based on the questions have been asked and observations made during field visits. Peer review of this advice cannot take into account what questions were not asked or any matters that were overlooked. With this in mind we consider that it is important that customer interaction and advice is always received from a fully certified QE.

5.11.6 Some concerns have been expressed that this would prevent training of staff. We do not accept that not having QE bodies prevents training of staff. Training is possible by providing advice whilst being overseen or mentored by a certified QE.

5.11.7 We also note the concerns in relation to the provision of advice from an organisation which is effectively a collective of individual QEs. We do not consider this a QE body nor do we wish to prevent this practice from continuing. We will provide guidance on this matter in our Policy Statement.

Conclusions

5.11.8 Subject to some additions there was agreement to the scope of interest of the Approval Board. A revised scope of interest will be published as part of the Policy Statement

5.11.9 We have looked again at the possibility of having QE bodies and have decided that inclusion in the QE scheme is not appropriate.

5.12 Proposition 13 – "The proposed function of an Assessing Body is appropriate"

5.12.1 The majority of respondents agreed that the proposed function of the Assessing Body is appropriate.

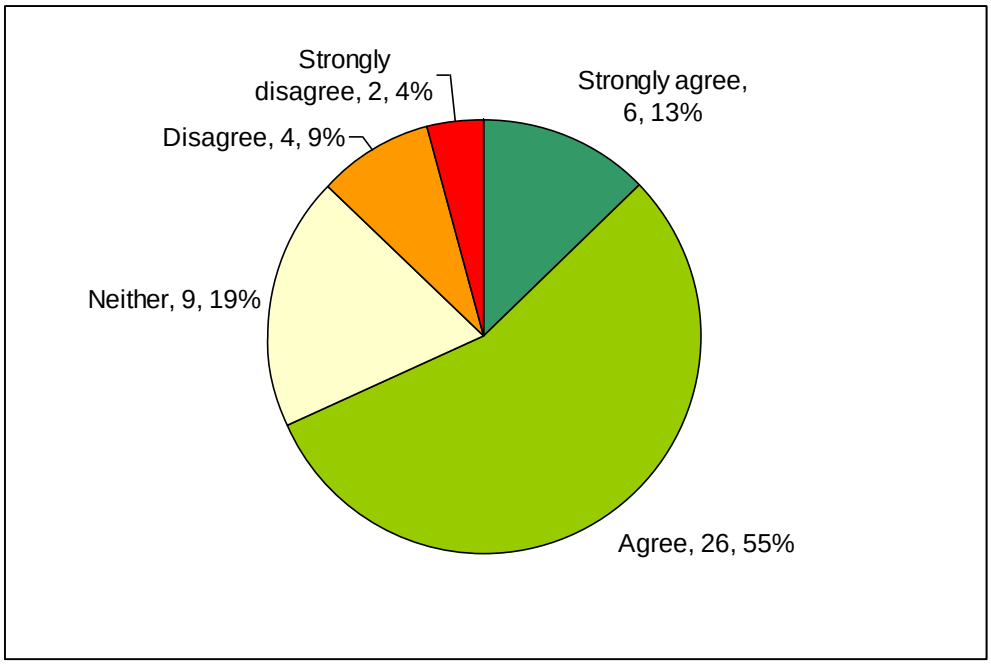

Figure 5.14 Proposition 13; the figures next to the labels are the number and percentage of individual responses in each category.

5.12.2 Two respondents strongly disagreed because they believe that the associated bureaucracy and costs involved with the QE scheme, and in particular setting up the Assessing Body and its procedures, will be disproportionate to any benefit gained. Some other respondents also questioned what the costs of the scheme would be. We have undertaken an Impact Assessment, tested it at the Leeds workshop and do not believe the costs will be disproportionate. The Impact Assessment will be published as part of our Policy Statement.

5.12.3 Two respondents thought that the Assessing Body should be required to maintain ISO/IEC 17025 accreditation. In the process of developing these proposals we have examined a number of similar schemes, e.g. RPA and LPA. These schemes do not require such ISO accreditation

and we have therefore concluded that accreditation is not necessary for our proposals at this time.

5.12.4 Several respondents, who it is believed are RPA2000 assessors, stated that it would be difficult to do assessments free of charge in the future. We believe that fees and charges for individual assessors is a matter for the Assessing Bodies. Additionally, a proportionate and measured approach to our syllabus and assessment should keep time spent and costs to a manageable level.

5.12.5 It was also suggested that the Assessing Bodies should carry out an audit function to ensure that their assessments are set at the correct level and that they should be given a specific time for assessing applications. It was also thought that they should be required to report performance against these criteria. We are considering these suggestions.

Conclusions

5.12.6 There is broad agreement with our proposals for the Assessing Body. Some concerns were raised about costs; these will be addressed in our Impact Assessment.

5.13 Proposition 14 – "The proposals for Corporate Qualified Experts and the arrangements for approving them are appropriate"

5.13.1 Many respondents felt that there was insufficient information to give a definitive response to the proposition and therefore responded that they neither agree nor disagree. We provided information on this topic at the Leeds workshop which appeared to be well received and is included in Annex 3 of this document. This information will form part of our Policy Statement.

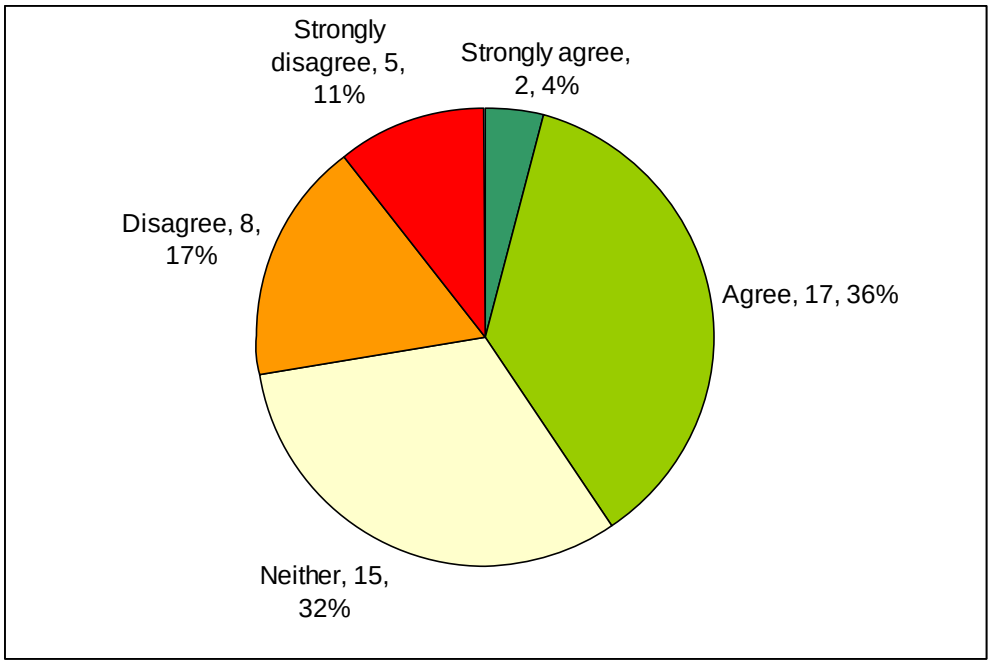

Figure 5.15 Proposition 14; the figures next to the labels are the number and percentage of individual responses in each category.

5.13.2 It was evident from the responses that there was some confusion in relation to the function and make up of a Corporate QE and the equivalent to an RPA Body. This matter was discussed in 5.11.4 and 5.11.5 and should address the associated concerns.

5.13.3 One respondent strongly disagreed with the proposal because they believed it was illogical and discriminatory:
"*We fail to see the logic of this: if a relatively minor non-nuclear industry employer with simple waste disposal requirements is required to appoint a fully qualified QE, then surely the nuclear industry with its much more complex disposal issues must also be required to appoint one. Removal of the corporate qualified expert option would not prevent the nuclear industry from using the existing collective process; it would just require one of the collective to be a recognised QE. As it stands, we feel that this proposal is discriminating against the small user, who doesn't even have the option of obtaining advice from a QE Body*."

5.13.4 We do not believe that the proposals are illogical or discriminatory, however we do agree that it should be straightforward for the nuclear industry to appoint individual QEs and indeed the consultation document stated that this should be the default position. However, several respondents have questioned why this should be the default

position and suggest that an organisation should be able to put in place the arrangements that best meet their needs. Therefore we have decided to keep the Corporate QE proposals.

5.13.5 Safeguards will be put in place to ensure that advice from a Corporate QE is appropriate. These include restricting the Corporate QE to:

- those nuclear sites that have sufficient resource to ensure that co-ordinated advice is given; and
- restricting the Corporate QE to only advising its own business

In addition, we will keep these arrangements under review to ensure that they are functioning appropriately.

5.13.6 Several nuclear organisations raised concerns about only being able to advise their own business, bearing in mind various corporate arrangements that mean they have closely related sister or parent organisations. We are considering this issue further with the intention of allowing provision of advice to such related organisations.

Conclusions

5.13.7 We will proceed with the proposal to put in place Corporate QE arrangements. Further detail is required. Some of this has already been provided, and is included in Annex 3. This will form part of the QE Policy Statement.

5.14 Proposition 15 – "There are no other key organisations that need to input to the implementation of the proposed arrangements"

5.14.1 The majority of respondents agreed that we had consulted all relevant organisations, whilst others made specific suggestions for whom we had missed;

- Association of University Radiation Protection Officers (AURPO)
- Institute of Physics and Engineering in Medicine (IPEM)
- Radiation Protection and Nuclear Medicine Specialist Interest Groups of IPEM

- European Commission (to keep them informed)
- Department for Transport
- Department of Health (to consider costs to NHS and in relation work developing training schemes)
- the Chartered Institution of Water and Environmental Management (CIWEM), the Institute of Environmental Management and Assessment (IEMA) and the Chartered Institution of Waste Management (CIWM)

5.14.2 Some of these organisations, such as AURPO and IPEM, were consulted and responded to the consultation.

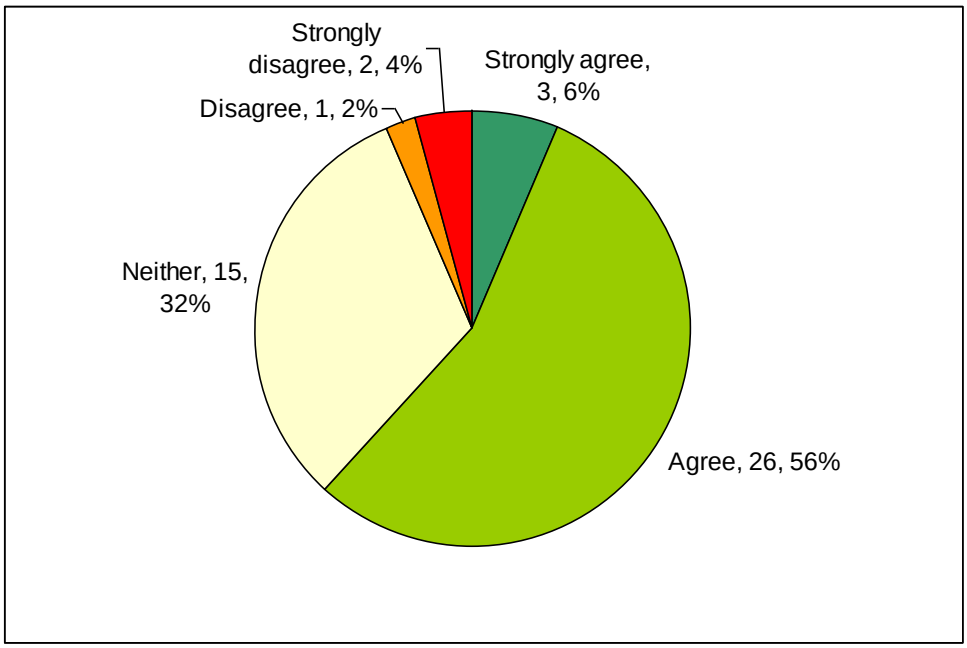

Figure 5.16 Proposition 15; the figures next to the labels are the number and percentage of individual responses in each category.

5.14.3 It was suggested that CIWEM (the Chartered Institution of Water and Environmental Management), IEMA (the Institute of Environmental Management and Assessment) and CIWM (the Chartered Institution of Waste Management) were consulted to ensure that the QE syllabus fully reflects an integrated environmental protection and waste management point of view. As discussed in 5.3.5 our proposals are developed to satisfy the radiation protection requirements of the BSSD and we do not believe that it is appropriate to require that a QE to be an expert in wider environmental protection.

Therefore, whilst comment from these organisations would have been helpful we do not believe that it was essential. Similarly, input from the Department for Transport may have been helpful, but we are not expecting QEs to be transport experts so such input was not essential.

5.14.4 Once our QE scheme is in place we will liaise with all relevant bodies that are developing training schemes, including the Department of Health to provide advice on our requirements and how these might be accommodated.

5.14.5 We have been keeping the Platform on European Training and Education in Radiation Protection (EUTERP) appraised of our work and are content that the EC will keep abreast of developments through this mechanism.

Conclusions

5.14.6 We are content that we have consulted with all key organisations to ensure that our QE scheme is fit for purpose and robust.

5.15 Proposition 16 – "The proposed timescale for implementation of the proposals is appropriate"

5.15.1 The majority of respondents thought that the proposed timescale for implementation was overly ambitious. This was the case whether they agreed or disagreed. There was particular concern that if early deadlines were missed then the latter stages would be rushed. We recognise that the timescales are ambitious but believe that they are achievable. We will regularly review the timetable and extend if necessary, we will not "rush" latter stages to make up for earlier delays.

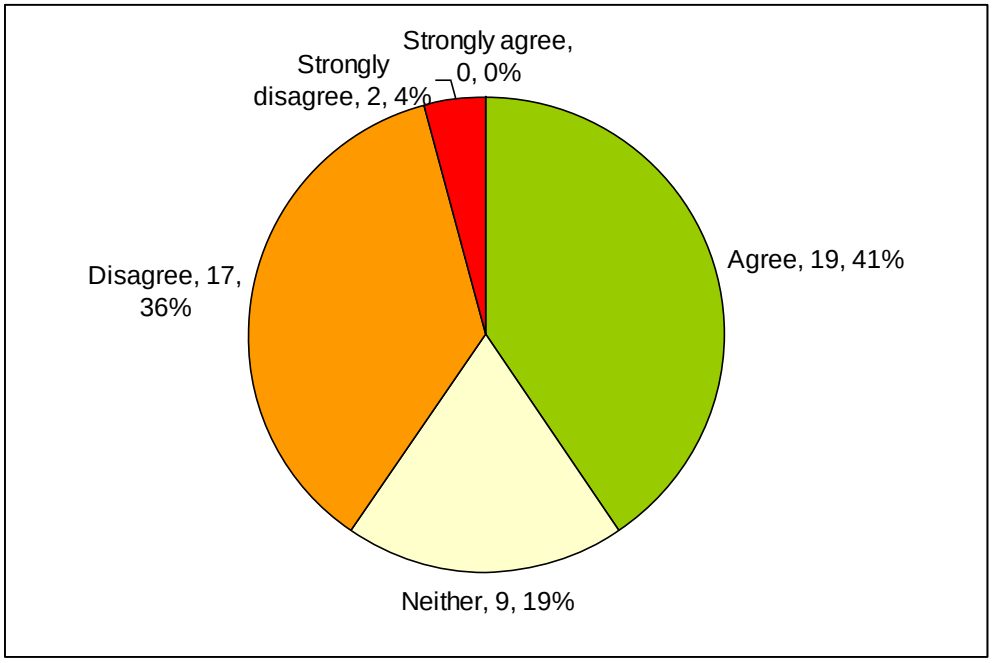

Figure 5.17 Proposition 16; the figures next to the labels are the number and percentage of individual responses in each category.

5.15.2 There were numerous concerns raised regarding the time that grandfather rights lasted; these are addressed in the following section.

Conclusions

5.15.3 We recognise that the timescale for implementation is ambitious but consider it is better to maintain the momentum that this work has gained. We will regularly review the timetable and extend this if necessary.

5.16 Proposition 17 – "The proposals for "grandfather rights" are suitable and reasonable"

5.16.1 In general respondents supported the principles underpinning grandfather rights but identified a number of issues:

- The proposals result in a 2 year gap where no new QEs can be accredited
- It is unclear over what timescale grandfather rights can be claimed

- Three years is rather short for grandfather rights, 5 years would be preferable and in keeping with other similar schemes
- It is unclear how grandfather rights apply to Corporate QEs

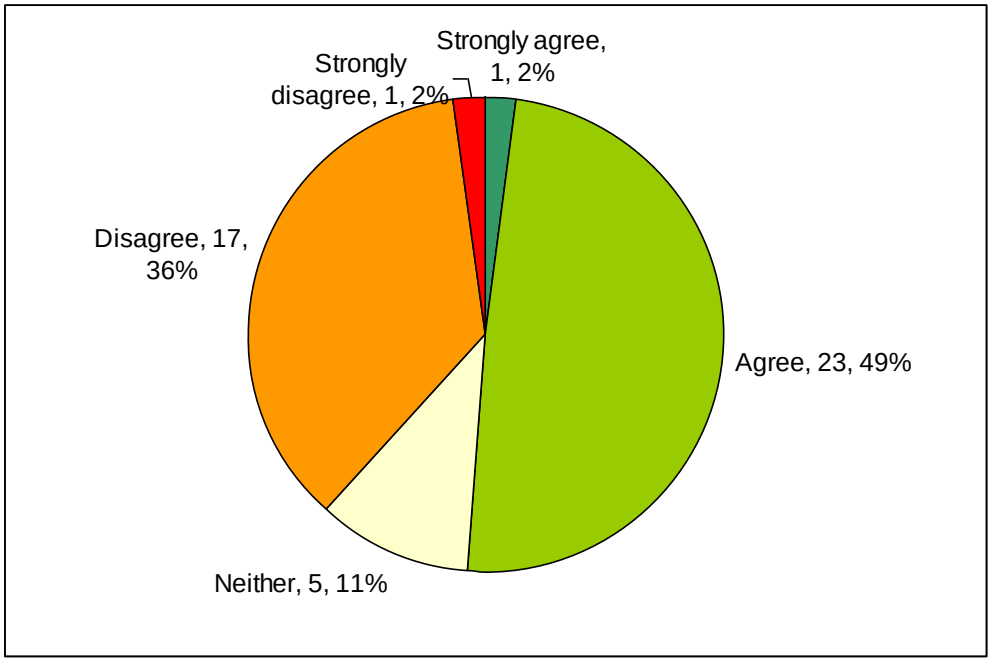

Figure 5.18 Proposition 17; the figures next to the labels are the number and percentage of individual responses in each category.

5.16.2 As a result of the comments received we are revising the grandfather rights component of our proposals. In summary, we will ensure that there is no gap where new QEs cannot be certificated by allowing individuals to apply for grandfather rights until a scheme is in place for assessing new QEs. We also intend to extend the period that grandfather rights last from 3 to 5 years. Applications for grandfather rights will be made to the environment agencies.

5.16.3 Some respondents commented that issuing grandfather rights is by definition just a paper exercise and that it would be simpler to just require everyone to have a certificate by a specified date, e.g. 2016. We do not think this appropriate as we envisage that re-accreditation will be more straightforward than initial application to be a QE. Therefore, issuing grandfather rights does provide a benefit to those individuals who have this status.

5.16.4 Corporate QEs will not have to go through the grandfather process. We will specify a date by which any nuclear site wishing to use

Corporate QE arrangements must apply to the Approval Board for approval. Providing they apply by the specified date, nuclear sites will be able to continue with their current arrangements until a decision is made by the Approval Board.

Conclusions

5.16.5 The majority of respondents agreed that there should be a scheme for issuing grandfather rights but had some issues regarding the detail of our proposal. We will address these concerns prior to publishing the final arrangements in our Policy Statement.

5.17 Proposition 19 – "How credit for existing RPA competences is given is an issue for the Assessing Bodies not the environment agencies"

5.17.1 Section 5.6 presented the results from proposition 18 which indicated a very high level of support for giving individuals credit for their RPA competencies when applying for QE status. Proposition 19 is about the process of how this is done and who designs this process.

5.17.2 Although the majority of respondents agreed that deciding how credit is given for RPA competencies this is an issue for the Assessing Bodies, a significant number did not agree because they consider this matter so important that it should not be left to the Assessing Body. Rather it should be prescribed by the environment agencies when credit shall be given and in what circumstances. There are also worries that there will be no consistency in the case of multiple Assessing Bodies and Corporate QE arrangements.

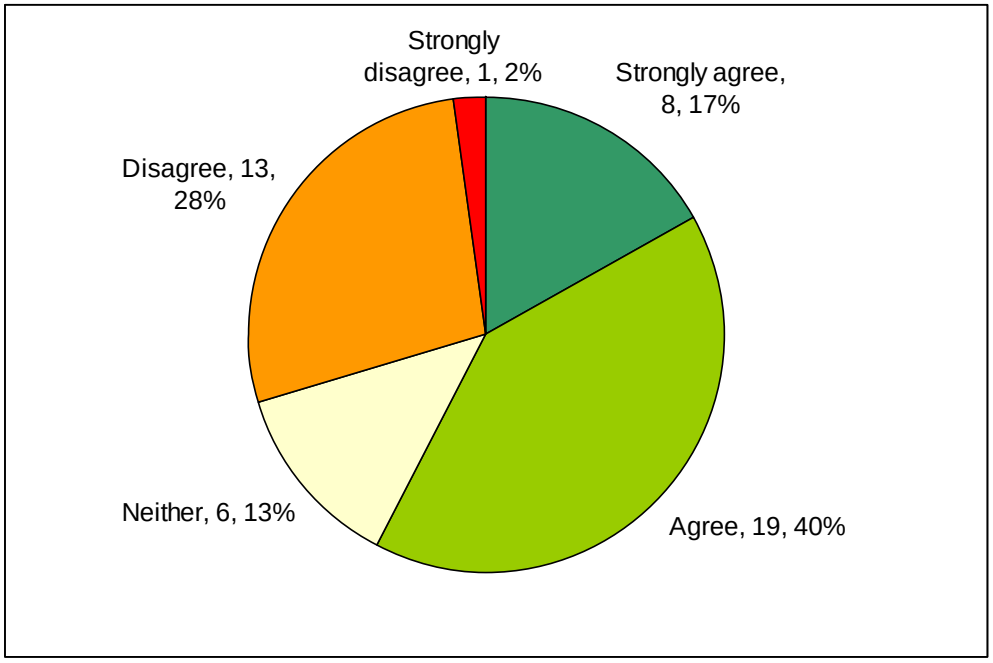

Figure 5.19 Proposition 19; the figures next to the labels are the number and percentage of individual responses in each category.

5.17.3 We understand the concerns raised in the consultation responses but we also need to ensure that any system for giving credit for RPA competences is both pragmatic, proportionate and practicable. To ensure that this is the case we consider that input from Assessing Bodies is crucial. The environment agencies will work together with potential Assessing Bodies to develop these arrangements which will be subject to approval by the Approval Board. We believe that giving the Approval Board responsibility for sign-off and oversight of these arrangements will assure consistency across different Assessing Bodies.

Conclusions

5.17.4 We have concluded that arrangements for giving credit for RPA competences (or other formally assessed competences) should be designed jointly by the Assessing Bodies and the environment agencies. The Approval Board will be responsible for sign off and oversight of these arrangements.

5.18 Proposition 20 – "The proposed term "Radioactive Waste Adviser (RWA)" is a suitable title for a person fulfilling the role of a Qualified Expert for the purposes of environmental radiation protection and radioactive waste management"

5.18.1 Many respondents agreed that the term Radioactive Waste Adviser is adequate for a person fulfilling the role of a "Qualified Expert for the purposes of environmental radiation protection and radioactive waste management" but it was not universally agreed that this was the best term.

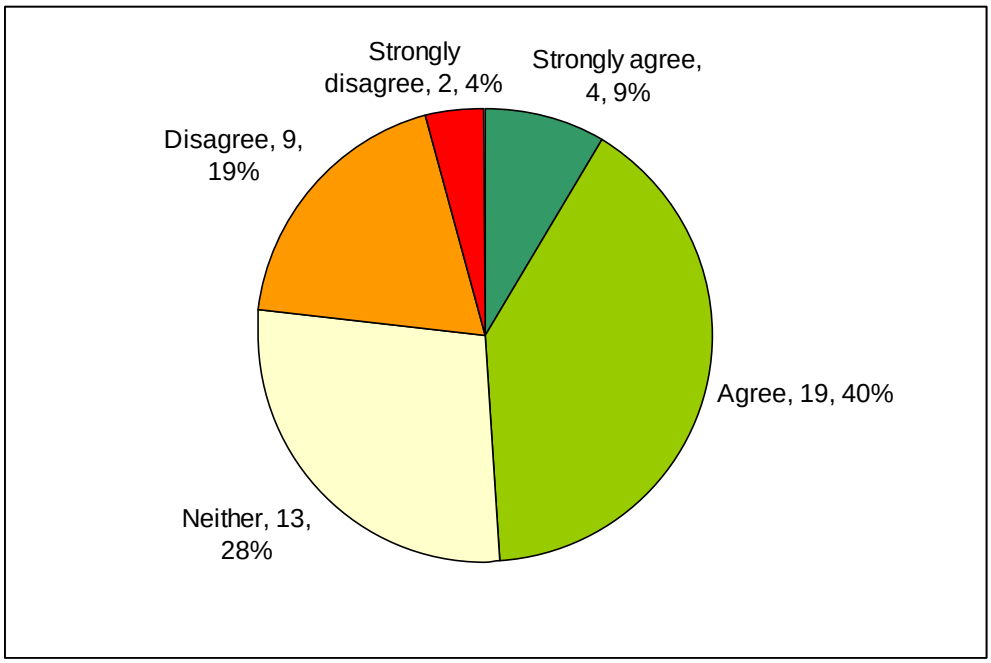

Figure 5.20 Proposition 20; the figures next to the labels are the number and percentage of individual responses in each category.

5.18.2 Other suggestions titles were:

- RSA(QE) = Radioactive Substances Adviser (Qualified Expert)
- RPA(RS) = Radioactive Permitting Adviser (Radioactive Substances)
- RSE = Radioactive Substances Expert
- QE(RSA) = Qualified Expert (Radioactive Substances Adviser)
- RSSA = Radioactive Substances Safety Advisor

- QE(RS) = Qualified Expert (Radioactive Substances)
- REA = Radioactive Environment Adviser
- REE = Radioactive Environment Expert
- ERPE = Environmental Radiation Protection Expert
- ERPA = Environmental Radiation Protection Adviser

5.18.3 Whilst we are tending to use the term Radioactive Waste Adviser and note that there is support for this title, we also recognise some post-workshop support for the term Environmental Radiation Protection Expert, particularly as it is based on the term Radiation Protection Expert which is likely to feature in the next version of the Basic Safety Standards Directive.

Conclusions

5.18.4 We have not yet made a final decision on the title for a person fulfilling the role of a Qualified Expert for the purposes of environmental radiation protection and radioactive waste management. The title will be announced when we publish our statement.

6 Overall Conclusions and Next Steps

6.1.1 We are satisfied that the majority of respondents are in broad agreement that our proposals are reasonable and workable. We have already taken into account many of the comments made and issues raised and have improved our proposals as a result.

6.1.2 Our next steps are to complete the necessary refinements, and create the various supporting documents and guidance that have been identified as necessary. It is our intention that we will publish a joint Policy Statement towards the end of May 2011.

6.1.3 Like any Policy Statement or guidance issued by the environment agencies, the QE Policy Statement will be subject to regular review and will be updated and improved to take into account lessons learned and feedback from interested parties.

7 Annex 1 – Environment Agencies' draft statement on roles and responsibilities of Radioactive Waste Advisers

ENVIRONMENT AGENCIES' STATEMENT ON ROLES AND RESPONSIBILITIES OF RADIOACTIVE WASTE ADVISERS

Executive Summary

This document explains that the environment agencies fulfil our obligations in relation to qualified experts by requiring permit holders to appoint radioactive waste advisers (RWA). This document specifies what we mean by the term radioactive waste adviser, what tasks we expect RWAs to perform and the associated responsibilities of the permit holder.

1 Introduction

1.1 The Basic Safety Standards Directive[2] (BSSD) lays down basic standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation. The BSSD requires that persons disposing of radioactive substances shall be subject to regulatory control. It also introduces the term "Qualified Expert" and requires Members States to ensure that persons subject to regulatory control appoint "qualified experts" to advise them about work with radioactivity that may affect people and the environment.

1.2 In the UK, people who dispose of radioactive waste are regulated by the environment agencies under the relevant radioactive waste legislation (RWL)[3]; these regulated persons are called permit[4] holders throughout this document. "Permit holder" means the legal person to whom a permit has been issued by the environment agencies.

[2] Council Directive 96/29/EURATOM of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation

[3] In England and Wales the relevant radioactive waste legislation is the Environmental Permitting Regulation 2010 (EPR10), in Scotland and Northern Ireland it is the Radioactive Substances Act 1993 (RSA93). Throughout this document this legislation is collectively referred to as the radioactive waste legislations (RWL)

[4] "permits" means authorisations granted under the RSA93 or environmental permits issued under EPR10

1.3 Article 47 of the BSSD also requires that members states require permit holders to carry out the following tasks and further specifies that qualified experts shall be concerned in the discharge of these duties:

- achieving and maintaining an optimal level of protection of the environment and the population;
- checking the effectiveness of technical devices for protecting the environment and the population;
- acceptance into service, from the point of view of surveillance of radiation protection, of equipment and procedures for measuring and assessing, as appropriate, exposure and radioactive contamination of the environment and the population; and
- regular calibration of measuring instruments and regular checking that they are serviceable and correctly used;

1.4 The UK government has placed a legal obligation[5,6] on the environment agencies to ensure that permit holders comply with these requirements.

1.5 The environment agencies comply with this obligation by placing appropriate conditions within our permits, including the requirement to appoint a "qualified expert". Permit holders must comply with the conditions in their permits.

1.6 This document specifies the UK environment agencies' expectation of the role of the "qualified expert" and the role of the permit holder with particular emphasis on their responsibilities in relation to the QE.

2 Qualified Experts

2.1 The BSSD defines a Qualified Expert as:
"Persons having the knowledge and training needed to carry out physical, technical or radiochemical tests enabling doses to be assessed, and to give advice in order to ensure effective protection of individuals and the correct operation of protective equipment, whose capacity to act as a qualified expert is recognized by the competent authorities. A qualified expert may

[5] In England & Wales this is achieved through Part 3 of Sch23 of EPR10.

[6] In Scotland and Northern Ireland the environment agencies have been directed under S40(2) of the Environment Act (e.g. The Radioactive Substances (Basic Safety Standards) (Scotland) Direction 2000)

be assigned the technical responsibility for the tasks of radiation protection of workers and members of the public".

2.2 It is worth noting that it is likely that this definition will become more generic in a planned revision of the BSS. The proposed change does not affect the concepts contained within this document.

2.3 In the United Kingdom the role of the qualified expert, as defined in the BSSD, is fulfilled by different roles specified in different legislation and regulated by different organisations. These include experts who can advise employers about personnel safety (Radiation Protection Advisers), patient safety, instrument calibration and maintenance, transport of radioactive materials and radioactive waste management and environmental radiation protection. The environment agencies are responsible for implementing the requirement for qualified experts to be involved in radioactive waste management and environmental radiation protection. To avoid confusion, we have used the term radioactive waste adviser (RWA) to describe such qualified experts, the term RWA is used throughout the rest of this document.

3 Radioactive waste advisers

3.1 A radioactive waste adviser is a person who has been certified as being competent by an assessing body that is recognised by the environment agencies.

3.2 A RWA's competency is assessed against the environmental radiation protection syllabus specified by the environment agencies. The RWA is an expert in environmental radiation protection; the RWA is not expected to be an expert in every topic that is specified on the syllabus.

3.3 The RWA syllabus has been designed so that a RWA will have sufficient knowledge of a wide range of issues relating to radioactive waste management and environmental radiation protection to enable them to provide a good standard of advice but just as importantly know when further specialist advice is needed and where to seek such advice.

3.4 The RWA is not required to have specialist knowledge of issues relating to conventional (i.e. non-radioactive) waste management or conventional (i.e. non-radioactive) environmental protection, but we would expect them to be able to advise their employer that additional advice might need to be sought on these matters if appropriate.

4 Roles and responsibilities of the permit holder

4.1 It is the responsibility of the permit holder to comply with the requirements of any permit issued under Radioactive Waste Legislation. This includes appointing suitable Radioactive Waste Advisers.

4.2 It is the responsibility of the permit holder to determine how many RWAs[7] they need to appoint based on their business needs.

4.3 The permit holder only needs to appoint a suitable RWA if required by permit conditions. Some permits, such as those which allow the keeping and use of sealed radioactive sources do not require the appointment of an RWA. However, such a permit holder may find it useful to consult an RWA as they will be able to provide expert advice on the safe keeping of radioactive material and disposal of the material once it becomes waste.

4.4 The permit holder is responsible for ensuring that any RWA appointed is "suitable" to give advice on the permit holder's business. Separate guidance has been produced by the environment agencies on "suitability in relation to Qualified Experts for radioactive waste management and environmental radiation protection".

4.5 The permit holder shall appoint the RWA(s) in writing. The appointment should specify the scope of advice which the RWA is required to give.

4.6 The permit holder is required to consult a RWA on the following matters:

- achieving and maintaining an optimal level of protection of the environment and the population;
- checking the effectiveness of technical devices for protecting the environment and the population;
- acceptance into service, from the point of view of surveillance of radiation protection, of equipment and procedures for measuring and assessing, as appropriate, exposure and radioactive contamination of the environment and the population; and
- regular calibration of measuring instruments and regular checking that they are serviceable and correctly used.

4.7 The permit holder shall have due regard to the advice provided by the RWA.

[7] RWA is used as shorthand and includes individual or multiple RWAs.

5 Role of the Radioactive Waste Adviser

5.1 The role of the RWA is advisory; responsibility for compliance with RWL and permit conditions lies with the permit holder.

5.2 The role of the RWA is to provide advice to the employer on radioactive waste management and environmental radiation protection. The permit holder will specify the scope of advice that a RWA is expected to give. It is likely to include:

- achieving and maintaining an optimal level of protection of the environment and the population;
- checking the effectiveness of technical devices for protecting the environment and the population;
- acceptance into service, from the point of view of surveillance of radiation protection, of equipment and procedures for measuring and assessing, as appropriate, exposure and radioactive contamination of the environment and the population;
- regular calibration of measuring instruments and regular checking that they are serviceable and correctly used; and
-

5.3 The RWA needs to understand the limitations of the advice that they are able to give and be able to recognise when further specialist advice is needed. The RWA should be able to clearly convey to the permit holder what additional specialist advice is needed and understand the resulting advice that is received.

5.4 Where an RWA recommends that additional advice is sought from a number of specialists, it is likely to be the role of the RWA to consolidate this advice into recommendations for his employer.

6 Providing advice on "achieving and meeting an optimal level of protection…"

6.1 As specified above the BSSD requires that permit holders achieve and maintain an optimal level of protection of the environment and the population. The primary mechanism that the environment agencies require

the permit holder to comply with this requirement is by imposing BAT/BPM[8] conditions. Radioactive waste advisers should therefore be able to provide advice on BAT/BPM.

7 The role of a RWA and the responsibilities associated with a particular job

7.1 There will usually be a difference between what is expected of a RWA by the environment agencies and what is required by an employer as part of an individual's job specification. The environment agencies have detailed the minimum requirements for an individual to be an RWA; this does not prevent the permit holder requiring additional competences to assist in complying with permit conditions and providing wider advice and assistance. For example, an employer may design a job where the employee is required to provide advice on both radioactive and non-radioactive waste management, or act as an RWA and RPA. The environment agencies have no problems with such an approach, but we are clear that these additional responsibilities are separate from the requirements to be an RWA.

[8] Although the environment agencies use the different terms best available technique (BAT) and best practicable means (BPM) we have stated that we consider that the requirements on the permit holder are the same.

8 Annex 2 – Draft Environmental Radiation Protection Syllabus for Radioactive Waste Advisers

ENVIRONMENTAL RADIATION PROTECTION SYLLABUS FOR RADIOACTIVE WASTE ADVISERS

This table is based on the basic syllabus for the qualified expert in radiation protection with a few additional items from the “additional material” list as published in EC Communication 98/C133/03.

The table is set out as follows:

The first column lists the topics given in the EC communication, with the addition of “Security of radioactive materials” which we felt warranted its own entry as this is a new topic since the EC syllabus was proposed.

The second column provides more detail, where appropriate, on what we expect to be included in the topic for a Radioactive Waste Adviser.

The third column gives the overall level of competence required and is based on a combination of knowledge and experience.

The competence required for each topic is based on three levels: General Awareness (GA), Basic Understanding (BU) and Detailed Understanding (DU) and these levels are defined as:

General Awareness: knows that the topic exists and is aware of its significance to work activities in context. Also knows how and where to obtain help on the topic if needed.

Basic Understanding: has a basic understanding of the topic with a level of detail that allows the Radioactive Waste Adviser to apply it to familiar work activities in context. If necessary, the Radioactive Waste Adviser can research further knowledge using readily available sources and apply it in less familiar circumstances.

Detailed Understanding: has a good understanding of the topic and the underlying principles and can apply the knowledge in appropriate contexts. The Radioactive Waste Adviser can apply the knowledge working from basic principles to deal with situations in new or unfamiliar areas.

The fourth column shows whether experience of the topic needs to be demonstrated to achieve competence.

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
1.	Basic atomic and nuclear physics	• Atomic structure and composition of the nucleus • Stable and unstable isotopes, activity • Types of radioactive decay • Nuclear fission • Half life and decay constants • Radioactive equilibria • The effects of time, distance and shielding	BU	No
2.	Basic biology	• Basic radiation chemistry • Effects of radiation on cells and tissue	BU	No
3.	Interaction of radiation with matter	• Charged particles, photons and neutrons • Types of nuclear reactions • Induced radioactivity	BU	No

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
4.	Biological effects of radiation	• Deterministic biological effects of ionising radiation • Stochastic biological effects of ionising radiation • The dose–response relationship • Effects of whole body irradiation • Effects of partial body irradiation	BU	No
5.	Detection and measurement methods (including uncertainties and limits of detection) for radioactive waste assessment and environmental monitoring	• Principles and theory of detection and measurement (e.g. efficiency, background, geometry, statistics) • Types of detection instruments (e.g. gas filled, ionisation chambers, scintillators, thermoluminescence, neutron detectors) • Choice of detection instruments • Interpretation of instrument measurements	BU	Yes
6.	Quantities and units (including dosimetry underlying regulatory	• Units • Dose terms (absorbed dose, equivalent dose,	BU	No

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
	quantities)	effective dose, committed dose) • Dose limits and constraints • Dosimetric calculations		
7.	Basis of radiation protection standards	• Linear hypothesis for stochastic effects • Threshold for deterministic effects • Epidemiological studies	BU	No
8.	ICRP principles:	• Principles (justification, optimisation, limitation)		
8a.	- Justification	• Justification of practices	BU	Yes
8b.	- Optimisation	• Optimisation of protection from radioactive substances	BU	Yes
8c.	- Dose limitation	• Dose limits	BU	Yes
9.	Practices and interventions (including natural radiation	• Practices and Interventions	GA	No

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
	sources)			
10.	Legal and regulatory basis:			
10a.	- International recommendations/conventions	• Conceptual framework (ICRP basic framework, justification/optimisation/dose limits, system of protection for intervention) • International organisations (IAEA, ICRP, ICRU, UNSCEAR, OECD)	GA	No
10b.	- European Union legislation	• The EURATOM Basic Safety Standards Directive • Council Regulation (EURATOM) 1493/93 The shipment of radioactive substances between Member States	GA	No
10c.	- National legislation and regulations (including competent authorities)	• Legislative framework in the UK • UK Regulatory bodies and regulatory system • Knowledge of the main requirements of the following legislation and principles and guidance: o The Environmental Permitting Regulations	DU	Yes

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
		2010 (EPR10)/The Radioactive Substances Act 1993 (RSA93) ○ Exemption orders made under EPR10/RSA93 ○ Published policies and guidance from the environment agencies ○ Limitations and conditions included in environment agencies' permits		
10d.		• The HASS and Orphan Sources Regulations 2005 • The Justification of Practices Involving Ionising Radiations Regulations 2004 • The Ionising Radiations Regulations 1999 • Directions made under RWL • The Radiation (Emergency Preparedness and Public Information) Regulations 2001	BU	Yes

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
		• The Transfrontier Shipment of Radioactive Waste and Spent Fuel Regulations 2008 • Radioactive Contaminated Land legislation		
11.	Operational radiation protection:			
11a.	- Types of sources (sealed, unsealed sources, and accelerators excluding X-ray units)	• Types of sources – sealed and unsealed • Sources of radioactivity – natural and man-made • Uses of radioactive sources (e.g. medical, research, industrial radiography, irradiators and accelerators, gauges, radiotracers, well logging, radioisotope production, nuclear medicine, radiotherapy, nuclear installations, mining and processing of raw materials)	BU	No

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience

11b.	- Hazard and risk assessment (including environmental impact)	• Radiological impact assessment methods
		• Pathways by which radioactive discharges may lead to a public dose:
		  ○ External
		  ○ Airborne – direct ingestion
		  ○ Airborne – deposition, followed by ingestion via food pathway
		  ○ Airborne – inhalation
		  ○ Liquid – direct ingestion (drinking water)
		  ○ Liquid - ingestion via food pathway
		  ○ Contact
		• Bio-accumulation effects
		• Impacts of radiation on non-human species
			DU	Yes

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
11c.	- Minimisation of risk	• Contamination of workers – avoidance / minimisation / emergency measures • Appropriate balance between employee dose and public dose • Exposure control	GA	No

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
11d.	- Control of releases Quality and environmental management systems	• Understanding of conditions and limitations in RWL Permits • Record keeping requirements and systems for radioactive materials • Investigation requirements for radiological incidents • Understanding of operating instructions relevant to RWL permits • Understanding of maintenance instructions relevant to RWL permits • Understanding of emergency instructions relevant to RWL permits • Understanding the reporting requirements and systems for radioactive sources and discharges	BU	Yes
	Abatement technology	• Abatement technologies available • Maintenance needs of abatement technologies	GA	No

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
11e.	- Monitoring - Area monitoring - Personal dosimetry (external, real time and internal) - Biological monitoring	• Personal monitoring methods • Monitoring of operations – instrumentation and control methods • Knowledge of instrument calibration procedures	GA	No
11f.	- Critical group concept/dose calculation for critical group	• How to determine the critical group • How to asses critical group dose	BU	Yes
11g.	- Ergonomics (e.g. user-friendly design and layout of instrumentation)		GA	No
11h.	- Operating rules and contingency planning	• Relevant aspects of operating procedures	BU	Yes
11i.	- Emergency procedures	• Relevant aspects of emergency response planning and contingency planning	BU	Yes

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
		• Reporting requirements • Investigation of incidents • Environmental monitoring requirements in the event of an emergency		
11j.	- Remedial action/decontamination	• Monitoring after an incident • Remediation methods • Public and employee protection measures after an incident • Availability of equipment and methods for dealing with spillages and other incidents	BU	No
11k.	- Analysis of past incidents including experience feedback		GA	No
12.	Organisation of radiation protection:			

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
12a.	- Role of qualified experts	• The role of the Radioactive Waste Adviser	DU	No
		• The role of other experts employed to advise on radiological protection.	BU	No
12b.	- Safety culture (importance of human behaviour		BU	Yes
12c.	- Communication skills (skills and ability to instil safety culture into others)	• Effective communication	BU	Yes
12d.	- Record keeping (sources, doses, unusual occurrences etc)	• Record keeping to comply with legislative requirements • Content, format and maintenance of records	BU	Yes
12e.	- Permits to work and other authorisations		GA	No
12f.	- Designation of areas and classification of workers	• Controlled and supervised areas	GA	No

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
12g.	- Quality control/auditing		BU	Yes
12h.	- Dealing with contractors		GA	No
13.	Waste management			

13a.	- Radioactive waste management	• Sources of radioactive waste, waste types, waste classification and waste characterisation
		• Principles of radioactive waste management: dilute and disperse, concentrate and contain, storage for decay and clearance from control
		• The waste hierarchy:
		  ○ avoidance
		  ○ minimisation
		  ○ reuse
		  ○ recycle
		  ○ disposal
			DU	Yes

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
		• Storage options for radioactive waste • Treatment options for radioactive waste • Management of disused sealed sources: technical options and safety aspects • Disposal options for radioactive waste		

13b.	- Radioactive waste assay	• Sampling methodologies and minimisation of secondary waste
		• Assay methodologies
		  ○ Uncertainties and limitations in assay data
		  ○ Assay recording methods
			BU	Yes

13c.	- Radioactive waste disposal	• Disposal options for radioactive waste.	DU	Yes
14.	Transport	• Transport of radioactive materials ○ Packaging of radioactive materials and waste for transport	GA	No

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
		○ Security of radioactive materials during transport • Transport documentation – dispatch and receipt		
15.	Optimisation techniques - BAT/BPM	• How to apply the BAT/BPM condition, and audit against BAT/BPM requirements, in relation to: ○ Facility design ○ Facility operation, including abatement of discharges ○ Minimisation of risk ○ Radioactive waste management ○ Facility decommissioning	DU	Yes
16.	Environmental monitoring	• Environmental monitoring: atmosphere, water bodies, foodstuffs, other environmental indicators, verification of compliance with derived environmental reference levels, survey techniques. • Tools available for environmental radiation	BU	Yes

Number	Topic	Content	Competence	
			Overall level	Demonstration of experience
		monitoring • Sampling and analysis methods for environmental measurements • Mapping and data presentation for environmental data • Monitoring at source: external radiation and liquid and gaseous effluents, verification of compliance with discharge limits • Application to different sources.		
17.	Security of radioactive materials	• Understanding of where to get advice. • Security requirements for radioactive sources (e.g. from CPNI/NaCTSO or OCNS). • Understanding the purpose and use of a security plan. • Understanding of protecting information.	BU	Yes

9 Annex 3 – Draft Environment Agencies' Statement on Corporate Radioactive Waste Advisers

ENVIRONMENT AGENCIES' STATEMENT ON CORPORATE RADIOACTIVE WASTE ADVISERS

Executive Summary

This document explains how the environment agencies will implement a scheme for the recognition of Corporate Radioactive Waste Advisers for nuclear permit holders and how we expect permit holders to demonstrate that they have adequate Self-Assessing Corporate Arrangements. A Corporate Radioactive Waste Adviser is a group of individuals who collectively provide the Radioactive Waste Adviser function for a permit holder.

1.0 Introduction

1.1.1 The environment agencies recognise that there are some nuclear permit holders that might want to implement their obligation for appointing Radioactive Waste Advisers by sharing the duties amongst more than one individual. Under these circumstances the group of individuals providing the Radioactive Waste Adviser function will be known as a "Corporate Radioactive Waste Adviser".

1.1.2 In order to be recognised as a Corporate Radioactive Waste Adviser the permit holder must have sufficient infrastructure to identify, develop and maintain the knowledge and experience of individuals within their organisation so that they can collectively fulfil all the expectations of an individual Radioactive Waste Adviser.

1.1.3 A permit holder recognised as a Corporate Radioactive Waste Adviser will only be allowed to advise its own business, that is, it cannot contract out its Radioactive Waste Adviser services.

2.0 How can organisations demonstrate their Self-Assessing Corporate Arrangements?

2.1.1 It is anticipated that most nuclear permit holders will be able to demonstrate that they have adequate Self-Assessing Corporate Arrangements by their existing management arrangements that are already required by permit conditions.

2.1.2 The environment agencies expect these management arrangements to demonstrate how the collective group of individuals, or job roles, that make up the Corporate Radioactive Waste Adviser fulfil all the constituent parts of the environmental radiation protection syllabus and that there are adequate links between the individuals to ensure that coherent advice is given to the permit holder.

2.1.3 The individuals that make up the Corporate Radioactive Waste Adviser can be employees of the permit holder, external consultants or a mixture of both. If external consultants are part of the Corporate Radioactive Waste Adviser function to one permit holder this does not preclude them from providing advice to other permit holders.

2.1.4 We will not prescribe any common competences for all individuals, or job roles, that make up a Corporate Radioactive Waste Adviser. That is for the permit holder to determine.

3.0 What information needs to be submitted to the Approval Board for recognition of Self-Assessing Corporate Arrangements?

3.1.1 An Approval Board with membership from the environment agencies and industry will be set up to recognise Self-Assessing Corporate Arrangements for nuclear permit holders.

3.1.2 The Approval Board requires permit holders applying for recognition of Self-Assessing Corporate Arrangements to provide, as a minimum, the following information:

a. Details of the permit holder demonstrating how it is constituted as, or comprises an identifiable part of, a legal entity or partnership or other grouping that is capable of being recognised;

b. Details of the arrangements the permit holder will use to identify, develop and maintain the competence of individuals within its organisation so that they can collectively fulfil the requirements of the Corporate Radioactive Waste Adviser;

c. Details of the permit holder's management procedures demonstrating how the individuals that collectively provide the Corporate Radioactive Waste Adviser function will provide the required advice on radioactive waste management and environmental radiation protection;

d. Details of how the individuals that collectively provide the Corporate Radioactive Waste Adviser function link together to provide coherent advice; and

e. Details of the arrangements in place to ensure continuity of advice in the event that part of the Corporate Radioactive Waste Adviser function is not available, e.g. because an individual leaves the employment of the organisation or is off work for any protracted period.

4.0 Suitability

It will be the permit holder's responsibility to demonstrate the suitability of the Corporate Radioactive Waste Adviser. The environment agencies have published separate guidance on the Suitability of Radioactive Waste Advisers.