

# Qualified Experts for Radioactive Waste Management – the UK Approach

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**Abstract.** Implementation of the Basic Safety Standards Directive (European Commission 1996) (“the BSSD”) in the UK has been achieved by the use of separate legislation for personnel safety and environmental protection, most of which originated 60 years ago. Regulation of radioactive waste management falls within the jurisdiction of the environment agencies in the UK who are therefore part of the Regulatory Body.

Articles 47(1) and 47(2) of the BSSD place specific requirements on permit holders and require qualified experts to be involved in the discharge of these duties. The UK’s environmental regulators have required employers to use a qualified expert to advise on radioactive waste management for several years (via a condition in permits issues under Radioactive Waste Legislation (RWL)). It is only recently that the regulators have defined the role of the Radioactive Waste Adviser (RWA) following a joint formal consultation in 2010 by the environment agencies for England and Wales, Scotland and Northern Ireland. Implementation of the new arrangements started on 01 July 2011.

The foundation of the arrangements is a syllabus of relevant knowledge and a scheme defining appropriate levels of experience. Together these are considered to describe the minimum level of competence expected of the Radioactive Waste Adviser. The development of the syllabus has been led by the regulators but with the UK Radiation Protection (RP) profession working closely with them.

In addition, the environment agencies have introduced an implementation scheme that will largely be run by the profession, with a “light touch” from the regulators. An independent body will certify the competence of all RWAs but the employer will still have to decide if any individual is suitable for their own circumstances.

The proposals are being applied to nuclear licensed sites with a form of self-certification of their arrangements as well as to other users of radioactive materials.

This paper outlines the expectations that the regulators have of RWAs and the employers that they advise. It also briefly describes how implementation of these arrangements is progressing. These expectations have been published in a joint Regulatory Statement available on a shared website hosted by the Scottish Environment Protection Agency (SEPA).

The arrangements are fit-for-purpose, consensual, consistent and clear and moreover lend themselves to the transition to the Radiation Protection Expert (RPE) proposed for the new BSSD.

**KEYWORDS: BSS, Qualified Experts, Competence, Radioactive Waste, Suitability**

## INTRODUCTION

For historical reasons, the Regulatory Body in the UK comprises several different regulators. This has meant that implementation of the Basic Safety Standards Directive (European Commission 1996) (“the BSSD”) has been achieved by the use of separate legislation regulated by different organisations for personnel safety and environmental protection. Regulation of radioactive waste management falls within the jurisdiction of the environment agencies in the UK and is enforced under the provisions of various items of Radioactive Waste Legislation (RWL).

Articles 47(1) and 47(2) of the BSSD place specific requirements on permit holders and require qualified experts to be involved in the discharge of these duties. The UK’s environmental regulators have required employers to use a qualified expert (QE) to advise on radioactive waste management for several years (via a condition in permits issues under RWL).

The roles of the qualified expert as defined in the BSSD include experts who can advise employers about a range of radiation protection challenges.

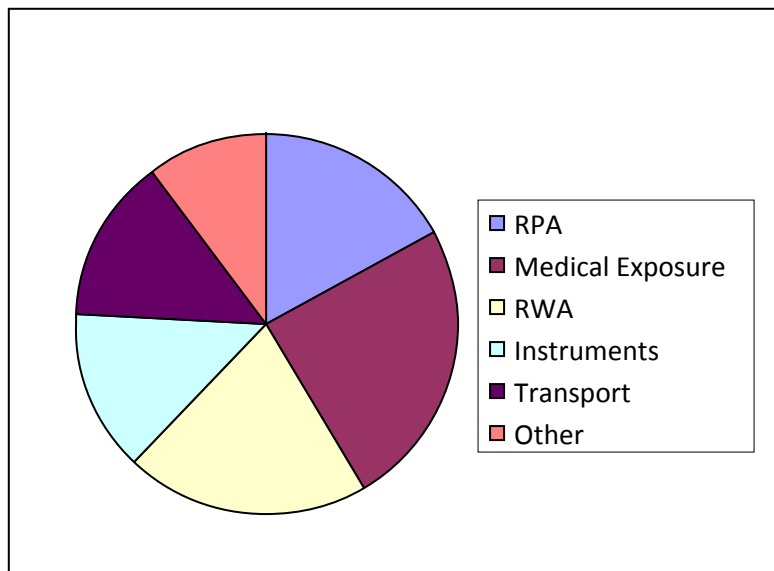


Fig. 1 A conceptual representation of the varied roles of the qualified expert.

Figure 1 demonstrates that the various roles include personnel safety (known in the UK as Radiation Protection Advisers (RPAs)), instrument calibration and maintenance, and radioactive waste management. This last role is now assigned to a new entity, the “Radioactive Waste Adviser” (RWA).

Radioactive Waste Adviser is the term now used in the UK to describe a qualified expert in radioactive waste management and environmental radiation protection. The scope of this paper reflects the role of the environment agencies and so only applies to the RWA part of the concept of the qualified expert as defined in the BSSD.

In many cases, the RWA function has previously been delivered by the RPA. But there has been no mechanism for ensuring suitable competence of the persons involved. This leaves both the RWA and

the operator potentially risk-exposed, and the regulator without a benchmark for compliance assessment. The environment agencies set out to remediate both these concerns.

## **BACKGROUND**

The BSSD takes a very broad definition of what a qualified expert is required to do. It describes qualified experts 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 be assigned the technical responsibility for the tasks of radiation protection of workers and members of the public”.*

There has long been a requirement for holders of permits (to accumulate or dispose of radioactive waste) to appoint qualified experts for each of their permits, since it is a requirement of the BSSD. With the aim of clarifying and formalising the existing arrangements, the three environment agencies published a joint Regulatory Statement to set a UK-wide standard for what are now known as Radioactive Waste Advisers.

The Statement was developed from proposals made in a formal public consultation document published by the regulators in 2010 (the environment agencies for England and Wales, Scotland and Northern Ireland) (Scottish Environment Protection Agency [SEPA] 2010; SEPA 2011 a). Moreover, a large number of meetings, workshops and other fora were held to discuss the proposals and make adjustments in order to achieve a high level of consensus. Generally, the view of the profession was that the proposals were appropriate, proportionate, professional and affordable.

The foundation of the proposals (implemented since July 2011) is a syllabus of relevant knowledge that also defines appropriate levels of experience (SEPA 2011c). Together, knowledge and experience are considered to equate to the competence of the Radioactive Waste Adviser. The development of the syllabus has been led by the regulators but with the UK Radiation Protection (RP) profession working with them.

A description of the process of stakeholder engagement used for the development of the basic approach, the syllabus and the implementation arrangements will be published elsewhere (Englefield *et al*, in preparation).

This paper outlines the expectations that the regulators now have of RWAs and the employers that they advise, and how implementation is progressing. These expectations have been published in a joint Regulatory Statement available at a shared website hosted by SEPA (SEPA n.d.; SEPA 2011 b). The Statement and all its associated guidance applies across the UK.

The Statement includes the syllabus of knowledge and experience that represents the minimum level of competence of an RWA. This syllabus is shared across all nuclear and other sectors of industry. This means that all RWAs can now be assessed against a common standard in each jurisdiction of the environmental regulators in all three parts of the UK. The regulators are in the process of appointing a

third party Assessing Body (a not-for-profit company) who will eventually take on the role of assessing and certifying the competence of all individual RWA candidates.

### **THE REGULATORS EXPECTATIONS OF RWAs**

The underpinning philosophy of regulation of radioactive waste in the UK relies on the principle of the regulator assisting the permit holder to comply with their permit (until and unless a serious breach of the conditions within the permit occurs when a proportionate enforcement position will be adopted).

This approach can only work if the permit holder is capable of complying with their permit in the first place. One way that the BSSD prescribes to assure that this is the case is by requiring the employer to involve an expert adviser, the “qualified expert”. Also, the BSSD prescribes that the Regulatory Body has a role in recognising the capacity of the adviser to act in this role.

The regulator expects the RWA to be well informed and able to make judgements that ensure the permit is complied with and so the environment is protected.

Logically, such arrangements can only be meaningful if the expectations of the Regulatory body have been published so that the experts can develop themselves to meet the published standard. The outcome from the environment agencies’ and the RP profession’s efforts to develop a definition of competence, and a syllabus that defines the requisite knowledge and experience of a candidate RWA, was largely welcomed by operators of nuclear sites and users of other radioactive materials.

A key part of achieving a consensus on these issues was the aspiration to include all existing persons providing advice to employers on radioactive waste management. It was eventually concluded that the role of the Regulatory Body had to be to set the minimum acceptable standard, rather than to set the highest possible standard. In this way, all those whose role was to give advice to their employer on radioactive waste management could share a benchmark. This makes recognition of candidate RWAs much more straightforward.

However, it is clear that an RWA who has trained in a hospital is not likely to be able effectively to advise his employer should he move to a nuclear licensed site. And the opposite case is also valid. Intuitively, it was clear that even an RWA whose basic competence is recognised has to be suitable for the premises that their advice relates to. Suitability therefore became a key component of the arrangements.

The concept of suitability has been borrowed from the regulation of another facet of the qualified expert – the adviser on personnel safety: an RPA. The legislation that requires this entity requires that any RPA should be “suitable”. However, it was the leading professional society for Radiation Protection in the UK (The Society for Radiological Protection (SRP)) that published helpful guidance on the meaning of suitability to assist employers and RPAs. The same basic approach has been adopted by the environment agencies to require in a defined manner, that an RWA must not only be competent, but s/he must also be suitable (SEPA 2011 d).

The environment agencies do not prescribe (beyond the minimum syllabus) where education and training opportunities are taken by RWAs in development. Nor do they dictate where the experience needs to be gained. The assumption is that training providers will prepare improved training courses in accordance with the syllabus, and that the market will determine which ones are recognised as those of best quality. There is no perceived need to try to regulate courses, training providers, nor trainers.

In the interests of cost-effectiveness of regulation, the regulators have directed the Assessing Body to take into account education, training and experience gained by RPAs who wish also to achieve the status of RWA. A study has shown that an RPA is short of only 25 per cent of the competencies required of RWAs, so upgrading is not too onerous. Many RWAs do not start as RPAs, so the “direct” route to achieving RWA status must also be available to applicants.

In addition, the environment agencies took the view that the administrative burden of the arrangements need to rest with the profession rather than with themselves.

The introduction of the concept of suitability as defined in guidance linked to the Statement, provides a framework by which assessment of competence can be made by a third party Assessing Body, but the regulator retains a degree of discretion should it be needed for compliance reasons, or for enforcement action: the RWA may be recognised as competent, but are they suitable? If they are not, the regulators can require improvement, or take action against the employer for failing to comply with the requirement to have access to a suitable RWA. History shows that such an enforcement approach is rarely implemented, but it is an important principle for regulators that they only put into permits conditions that can be enforced. Should they need to do so, the regulators have suitability as an enforcement tool. It must be emphasised however that the primary advantage of the RWA arrangements is that there is a defined and shared definition of competence vis-à-vis radioactive waste management and environmental radiation protection.

### **TRANSITION ARRANGEMENTS**

Whilst the majority of sites regulated under RWL in the UK are deemed to have satisfactory provision of RWA services, inevitably there are some advisers who, if subject to a close and rigorous scrutiny, may not be able to meet all the defined requirements of an RWA. In recognition of this, and its logical consequence (that time is needed for people to develop their professional competence), the environment agencies have put in place generous transition arrangements. This includes the provision of “grandfather rights”.

These have been in place since 01 July 2011 and allow for an existing qualified expert to register for “grandfather rights” by a simple application process that provides evidence of their current or recent work as an RWA. The environment agencies are processing these applications and will issue each successful applicant a certificate of recognition as an RWA. Following the closure of the “grandfather rights” period, new candidates will have to satisfy the third party Assessing Body, not the regulators, that they are competent. By 01 July 2016, all RWAs will be subject to assessment and review by the Assessing Body.

This will be done using the well established technique (in the UK) of a portfolio of evidence reviewed by professional peers of the applicants on a voluntary basis. This evidence includes training records and example documents that evidence particular technical experiences.

The Assessing Body will itself be approved by an Approval Board. The Approval Board comprises senior staff of the environment agencies supported by a secretariat. Both the Board and the Secretariat work on a very part-time basis. The Board will soon also include representatives of the RP profession recruited (via exiting regulator-industry liaison groups) as advisers, to ensure transparency.

## **APPLICATION OF THE ARRANGEMENTS TO THE NUCLEAR INDUSTRY**

Although the principles and the syllabus are common to all users who have permits under RWL, some differences in implementation have been developed for the nuclear industry. In particular, it is sometimes the case that a nuclear site has a group of people who, taken together provide the RWA function. They may not each have the full set of competencies of a recognised RWA, but the group as a whole do so. The arrangements recognise this, and such a group is known as a “Corporate RWA”. A nuclear site may take such an approach if they wish, or they may employ individuals who are each recognised as competent (and are suitable) to advise the permit holder.

Given the high level of expertise of a nuclear licensed site, which reflects the complexity of the processes involved in ensuring adequate environmental radiation protection, the capacity of such a group to act as a Corporate RWA will be approved by the Approval Board, not the Assessing Body.

Individual regulators of nuclear sites will assess compliance with the permit during normal inspections, and can test suitability of the RWA as part of this.

## **COST IMPLICATIONS**

The environment agencies undertook a study of the implementation costs of the arrangements as a part of the consultation on the proposals. The study was critically reviewed by nuclear and non-nuclear stakeholders. It was accepted that these arrangements are likely to save some costs of duplication of effort by the nuclear industry, but are likely to involve some additional training costs for other users of radioactive materials. However, it was demonstrated that these costs are trivial when averaged over the five year transition period.

## **THE FUTURE**

The environment agencies have an aspiration to a higher level of competence and thus a higher level of environmental radiation protection as a result of the introduction of these arrangements. In addition, they are examining the scope for using the same RWA syllabus for the development of their own regulatory staff. This may include the use of an Assessing Body with representation from the nuclear and other users of radioactive material.

## **CONCLUSIONS**

The UK environment agencies have collaborated with each other and the UK RP profession to create a UK-wide system to formalise the standard of competence of qualified experts that advise employers about radioactive waste management.

With a high level of stakeholder engagement, a consensus was reached that was acceptable both to the regulators and to those directly affected by the new arrangements, the RWAs themselves.

The environment agencies do not prescribe (beyond the minimum syllabus) where education and training opportunities are taken by RWAs in development. Nor do they dictate where the experience needs to be gained.

Both the environmental regulators and the RP profession anticipate benefits in the establishment of arrangements to define the competence of Radioactive Waste Advisers that are fit-for-purpose, consensual, consistent and clear.

The involvement of the profession has meant that the implementation of the arrangements has gone quite smoothly.

The holders of permits issued under RWL have now clarity about the role of the RWA, and have a specification against which to train and develop people in the role. The regulators have a bench mark against which to assess compliance, without a large administrative burden and its associated costs.

By 01 July 2016, all RWAs will be subject to assessment and review by the Assessing Body.

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