

Joint Regulatory Expectations for Land Quality Management at UK Nuclear Sites - 16596

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ABSTRACT

Across the UK a variety of policies and legislation can apply to the management of land quality and several regulators are involved. The risk that such complexity could hamper or delay the delivery of decommissioning and clean-up at nuclear sites, has led to the UK regulators developing a suite of joint expectations for land quality management together with working-together arrangements to support the delivery of these.

INTRODUCTION

There are 36 nuclear sites in the UK across England, Scotland and Wales (there are none in Northern Ireland). Operations on nuclear sites have covered nuclear power generation, nuclear fuel cycle activities, radioactive waste management, defence and healthcare. Some sites remain operational while others are in various stages of decommissioning and clean up. The oldest sites have been engaged in nuclear activities for up to 70 years, over which time environmental protection standards have seen major change. The consequence is that the UK has a considerable variety of sites in type and scale with varying historical land contamination issues.

At nuclear sites the responsibility for regulation of land quality issues (radioactive and non-radioactive) fall to the relevant environment agency (the Environment Agency in England, Natural Resources Wales (NRW) in Wales, and, in Scotland, the Scottish Environment Protection Agency (SEPA)) as well as the Office for Nuclear Regulation (ONR) [1]. At any one site some of the regulatory responsibilities for land quality matters will overlap while others will be quite distinct. For example radioactive and non-radioactive (chemical) contamination on nuclear sites is usually controlled under different regulatory regimes, each of which has different

regulators. Various legislation relates to both radioactive and non-radioactive contamination, including that relevant to the definition and management of 'contaminated land' – with separate definitions for radioactive and non-radioactive 'contaminated land', and again, further legislation which relates to the management of land contamination, both radioactive and, separately, non-radioactive. This paper does not attempt to provide a description of the legislative regime that exists in the UK – a comprehensive summary is available elsewhere [2]

There is a risk that operators are confused about the requirements and how best they should demonstrate their achievement of these. Irrespective of the complex regulatory framework that exists, the regulators share the common expectation that land quality management issues need to be managed responsibly and that, where land contamination exists, it is managed in ways that deliver proper protection for people and the environment.

To help provide clarity the regulators have collaborated to develop a common set of 'expectations' for Land Quality Management (LQM) at nuclear sites [3].

DESCRIPTION

The joint expectations were prepared jointly by the ONR, the Environment Agency, NRW, and SEPA ('the UK regulators'). The expectations describe both the UK regulators' overall objective for LQM on nuclear licensed sites across the UK, together with their expectations of nuclear site licensees and operators in achieving this. They represent high-level expectations produced to promote relevant good practice rather than seeking to specify regulatory requirements, and are not legally binding on operators.

The UK regulators define LQM as the prevention of land and groundwater contamination, and the remediation (including control and monitoring) of radioactive and non-radioactive contamination on the surface of the ground, in the ground and in groundwater. Therefore, LQM includes management activities that should occur irrespective of whether or not any contamination exists. If there is contamination then LQM activities should include the implementation of proportionate remediation options intended to meet standards that will ultimately not require further specific regulatory controls on the site and will not preclude other beneficial re-use of the land.

Although there is a considerable body of literature and experience associated with the remediation of land contamination, the waste management and decommissioning policies and regulatory frameworks in the UK and overseas are different and therefore international standards for remediation work may not be the same as those in the UK.

The UK regulators have developed, or are developing, more detailed requirements and guidance relevant to LQM for the different regulatory regimes. They encourage

nuclear site operators to engage early with the relevant regulators at their site(s) to achieve a more detailed understanding of the particular regulatory requirements, and guidance applicable to their sites.

Overall objective of LQM

The overall objective of LQM is to take all reasonably practicable measures to prevent contamination and to ensure existing contamination is managed to mitigate safety and environmental risks. This includes ensuring that where contamination exists, proportionate remediation is undertaken to avoid, so far as is reasonably practicable, risks to human health, safety and to the environment for present and future generations.

Summary expectations for good LQM

The UK regulators expect licensees and operators to manage the land quality at nuclear licensed sites in ways that:

- prevent unacceptable activities in terms of land and groundwater protection taking place; and
- ensure that any risks to people and the environment associated with land quality are promptly and properly managed.

To do this, the UK regulators expect licensees and operators to have a robust strategy for the management of land quality at their sites, implemented through a single LQM plan that addresses issues holistically and takes due account of radioactive and non-radioactive substances.

The development of both the strategy and plan should be systematic and the approach to their development and management should be fully integrated and iterative. They should address the UK regulators' expectations that operators should:

- prevent new land contamination, so far as is reasonably practicable, through design and maintenance of facilities, supported by monitoring;
- understand the land quality and contamination characteristics of the site, so as to inform decisions on land quality management;
- assess the options for LQM taking due account of sustainable development;
- identify and prioritise LQM activities;

- apply the waste management hierarchy so as to minimise the quantities of waste produced from remediation that require disposal;
- avoid the creation of radioactive wastes in forms which may foreclose options for safe and effective long-term waste management;
- ensure sufficient and competent resources are allocated to implement LQM activities;
- engage with stakeholders (including the regulators) from an early stage;
- develop the safety case / radioactive and non-radioactive waste management arrangements for land quality management;
- ensure that risks are as low as reasonably practicable/achievable (or otherwise minimised as appropriate for non-radioactive contamination); and
- maintain fit-for-purpose land management records and manage relevant knowledge appropriately.

CO-ORDINATION OF UK REGULATION

Having published the expectations for LQM the UK regulators established a Joint Working Group on LQM to provide strategic oversight and co-ordination of LQM issues across nuclear sites. This group, comprising representatives of each of the UK regulators, has met regularly to consider not only the sharing and communication of the joint expectations for LQM, but also to provide a forum for discussions between the regulators on any issues arising from these, including their implementation at nuclear sites. The work of this group is still in its relative infancy, but several issues that it will need to address have been identified. These include:

- the need to establish a common understanding between regulators of the status of contamination at each site;
- the need for a common regulatory perspective on priorities for action at and between sites;
- the need to clarify the mechanics of 'joint regulation' at the sites (including arrangements for communication with site operators, making best use of regulatory skills and expertise between the relevant regulators, and arrangements for the recovery of regulatory costs).

The delivery of these expectations and the regulators commitments to working together is being applied at a number of sites in the UK – in particular at the

Magnox sites. Further description of the ways in which this is working is provided elsewhere in these proceedings [4] [5].

CONCLUSIONS

The UK regulators, in recognition of the complexity of the UK policy and legal framework applying to land contamination on nuclear sites, have collaborated to agree a set of 'joint expectations' for LQM. They address the prevention of contamination and the management of contaminated land and groundwater.

Their expectations are consistent with regulatory requirements, but provide a simple set of principles that can be applied to all sites and types of potential contamination.

This has the advantage of supporting early dialogue with operators and land owners to allow priorities to be agreed and resourced. They also support wider communication with other stakeholders.

The UK regulators have embarked on several follow up activities to build on the work in establishing the joint expectations and look for further areas where collaboration will be beneficial.

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