

**Disposal of radioactive waste on nuclear sites by deposit or burial**  
**Joint Regulators' Statement of Common Understanding**

**EA / SEPA / NRW / ONR**

The purpose of this note is to provide a statement of common understanding between the EA / SEPA / NRW and ONR (hereafter termed the 'Regulators') of the requirements applicable to disposal of radioactive waste on nuclear sites, and the harmonised approach the Regulators will deliver in regulating such matters.

## **1 Definitions**

- 1.1 "EPR10" means the Environmental Protection (England and Wales) Regulations 2010 which apply in England and Wales.
- 1.2 "RSA93" means the Radioactive Substances Act 1993 which applies in Scotland and Northern Ireland.
- 1.3 "RSR" is an abbreviation of Radioactive Substances Regulation, a term used by the Regulators to refer generally to EPR10 and/or RSA93.
- 1.4 Within RSR, "radioactive waste" is as defined in EPR10, Schedule 23, Part 2, paragraph 3, and in RSA93 section 1A. It can include any substance or article that is waste as defined in EPR10, Sch. 23, Part 2, paragraph 3(2) / RSA93 s.47(1) & (4) except as specified in the exclusions and exemptions which apply. A substance or article becomes radioactive waste immediately the RSR definitions are met; there is no discretion on behalf of permit holders or Regulators as to when radioactive waste is created. In the context of a nuclear site being decommissioned, this means that any article, if contaminated to levels exceeding RSR thresholds, will become radioactive waste when the definition is met.
- 1.5 "Disposal" of radioactive waste is defined in EPR10, Schedule 23, Part 2, paragraph 1(1), and in RSA93 section 47(1), and includes "its removal, deposit, destruction, discharge (whether into water or into air or into a sewer or drain or otherwise, or burial (whether underground or otherwise)". In the context of nuclear sites being decommissioned, disposal is an activity that requires permitting and includes radioactive waste being permanently emplaced on site (e.g. into a purpose-built facility or into an existing void) and radioactive waste in situ being left there permanently (e.g. buried pipework and foundations).

- 1.6 Waste may be stored before disposal. We distinguish between storage and disposal as follows<sup>1</sup>:
- a) “Storage” is seen as emplacement in a facility, either engineered or natural, with the intention of taking further action at a later time, and in such a way and location that such action is expected to be feasible.
  - b) “Disposal” is seen as a permitted discharge of radioactive waste into an environmental medium or a permitted emplacement in a facility, either engineered or natural, with the intention of taking no further action apart from any monitoring which may be thought desirable on either technical grounds or to provide reassurance.
- 1.7 In this context “feasible” means not only technically practicable, but also compliant with regulatory requirements. That is, to be feasible, proposals should satisfy RSR and nuclear safety legislation, government policy, and regulatory guidance.
- 1.8 The Regulators use these definitions to determine on a case by case basis, whether operators’ proposals and actions constitute the creation and disposal of radioactive waste as defined by RSR legislation.

## **2 Regulation of Radioactive Waste Disposal on or From Nuclear Sites**

- 2.1 Any operator undertaking activities that constitute the disposal of radioactive waste as defined within RSR must comply fully with the requirements of both RSR and nuclear safety legislation, in whatever form that disposal takes place.
- 2.2 ONR regulates the safety of radioactive disposal operations on nuclear sites. Licensees must ensure that there are adequate arrangements in accordance with the site licence conditions to ensure safety.
- 2.3 The relevant environment agency is responsible for granting authorisation for radioactive waste disposals on and from nuclear sites. Operators must hold prior authorisation to dispose of radioactive waste, and carry on such disposals in accordance with the terms of their authorisation.
- 2.4 Nuclear site operators must demonstrate to ONR and the relevant environment agency that the management of radioactive waste from the point of its creation to its disposal is optimised<sup>2</sup>. This includes, among other things, both the manner and the timing of the management of wastes from its creation to disposal.
- 2.5 The environment agencies expect operators to make timely applications for the appropriate permissions for disposal of wastes arising from the eventual demolition of redundant structures. However we will not normally seek early demolition of redundant structures and authorisation of disposal of the resulting wastes, providing such

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<sup>1</sup> These definitions are contained in the Guide to the Administration of the Radioactive Substances Act 1960 and the Notes and Clauses to the Act.

<sup>2</sup> As required under Council Directive 96/29/EURATOM.

structures are adequately maintained in accordance with relevant legislative and regulatory requirements for safety<sup>3</sup> and environmental purposes.

- 2.6 Where a structure is redundant and not being maintained in accordance with relevant legislative requirements, the Regulators may intervene sooner to ensure the appropriate actions are undertaken from both an environmental and safety regulation perspective.
- 2.7 Redundant structures, such as buildings, vaults and ponds comprise a mixture of materials and wastes which may include both Directive and radioactive waste, for example:
- redundant ducts, drains, sumps, or pipes (whether at, above or below ground level);
  - rubble or scrap resulting from the dismantling or demolition of such structures, and
  - waste resulting from clean-up of ground or groundwater contaminated by radioactivity.
- 2.8 Any waste arising from the demolition or decontamination of such structures must be managed according to the applicable legislation i.e. RSR or the relevant Directive waste regulations in England, Wales or Scotland.

### **3 Authorisation of Radioactive Waste Disposals by Deposit or Burial on a Nuclear Site**

- 3.1 A detailed explanation of how the environment agencies will authorise disposal of solid radioactive waste on a nuclear site is provided in Chapter 8 of the joint SEPA, EA and NRW document entitled, “Guidance on Requirements for Release of Nuclear Sites from Radioactive Substances Regulation” (the GRR).
- 3.2 For the purpose of this document the main points from Chapter 8 of the GRR are summarised below:
- a) Prior to any specific act of disposal of radioactive waste, which includes the permanent emplacement of radioactive waste into a void or onto land, authorisation will be required.
  - b) For waste in situ, where there may be no readily identifiable physical act of emplacement, authorisation will be required before operators can leave the waste in situ permanently. Until and unless such authorisation is granted the environment agencies regard this as waste awaiting disposal<sup>4</sup>.
  - c) The management of wastes, whether they are intended to be disposed by emplacement, disposed of in-situ, or to be stored pending final disposal, should be demonstrated to both the relevant environment agency and the ONR to

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<sup>3</sup> Including but not limited to, satisfying the requirements of Licence Conditions 25 (Operational records), 28 (Examination, inspection, maintenance and testing) and 32 (Accumulation of radioactive waste).

<sup>4</sup> Where building structures remain intact and are maintained the Agencies will not seek to authorise the disposal of contaminated footings until such time as the building is demolished.

represent the optimised management option for that waste and that the disposal (in combination with all other past and prospective disposals and contamination remaining on site) satisfies the relevant requirements in the GRR.

- d) The Regulators wish to avoid sham storage, in which the operator claims that a decision regarding the intent to retrieve radioactive waste, or to dispose of it elsewhere, has not yet been made, when in fact the act (whether of omission or commission) constitutes a disposal as defined in RSR. The environment agencies will therefore, where necessary, determine whether operators have made unauthorised disposals despite their assertions otherwise and take the appropriate action.

3.3 To facilitate this, the environment agencies will require operators under their permits to:

- a) develop and maintain a waste management plan (WMP) for the site identifying prospective disposals on and from the site over the remaining lifetime of the site; and
- b) develop and maintain a site wide environment safety case (SWESC)<sup>5</sup> that demonstrates consistency with our standards for release of the site from RSR, taking account of all past and prospective disposals and other potential sources or features that could impact on people and the environment, such as contaminated land or groundwater.<sup>6</sup>

3.4 The environment agencies encourage nuclear site operators to apply for variations to their authorisations as soon as reasonably practicable, taking account of the timings set out in their WMPs. Early applications improve regulatory certainty for the operator to execute their plans, and avoid sub-optimal solutions that may result from late applications.

3.5 Early authorisation for on-site disposal confers many benefits<sup>7</sup> and, because such authorisation effectively only enables the activity and does not compel the operator to undertake a disposal, there are no material dis-benefits.

3.6 Waste in storage is regulated by ONR as an “accumulation”. Such waste should be managed under appropriate safety and environmental cases, and be accounted for under Licence Condition 25. Any interim storage (whether of waste or material) pending retrieval and disposal must be satisfactorily contained to prevent the loss of radioactivity or other contaminants into the environment. A failure to prevent such a loss may be deemed to be an unauthorised disposal and/or a breach of Licence Condition 34 (Leakage and escape of radioactive material and radioactive waste), for which the Regulators may take appropriate enforcement action.

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<sup>5</sup> The SWESC is a living document and will evolve with time; it will be an important input to any application for the variation of an authorisation for on-site disposal of radioactive waste and will need to be sufficiently detailed to support such an application.

<sup>6</sup> References to a WMP and SWESC do not require specific separate documents. Operators may structure their documentation in other ways, and making use of other sources of information, provided that they sensibly provide information and demonstrations specified in the GRR.

<sup>7</sup> Early application: gives regulatory certainty for operator; avoids sub-optimal solutions; make use of the staff’s knowledge of the site; enables constructive discussions with other stakeholders such as planning authorities; provides clear disposal routes; and demonstrates to the public that matters are being considered.

- 3.7 The environment agencies and/or ONR may take enforcement action for an unauthorised disposal where for example:
- a) the operator states an intent to retrieve waste in the future but the environment agencies are not satisfied that this intent is feasible;
  - b) the operator declines to state their intent and the environment agencies consider that the waste has been disposed of as a result of the operator's actions (or inaction) in relation to that waste; or
  - c) the licensee has breached safety legislation or site licence conditions.

#### **4 Regulation of Safety of Disposal Activities by ONR**

- 4.1 The safety of disposal activities on nuclear sites is regulated by ONR through requirements that include but are not limited to:
- make and implement adequate arrangements for the production and assessment of safety cases to demonstrate the safety of operations affecting safety (Licence Conditions 14 & 23);
  - make and implement adequate arrangements for minimising the accumulation of radioactive waste (Licence Condition 32) and providing adequate control or containment of radioactive material and radioactive waste so that it cannot leak or escape (Licence Condition 34);
  - make and implement adequate arrangements for training (Licence Condition 10), control and supervision of such operations (Licence Condition 26) and ensuring that only suitably qualified and experienced persons perform duties affecting safety (Licence Condition 12);
  - provide adequate instructions as regards risks and hazards, precautions to be observed and action to be taken in the event of an accident or emergency (Licence Condition 9) and make and implement adequate emergency arrangements (Licence Condition 11);
  - make and implement adequate arrangements for the notification, recording, investigation and reporting of incidents (Licence Condition 7);
  - require suitable and sufficient safety mechanisms, devices and circuits (Licence Condition 27) and adequate arrangements for examination, inspection, maintenance and testing of plant affecting safety (Licence Condition 28); and
  - ensure, so far as is reasonably practicable, the health, safety and welfare at work of employees, and ensure that other persons are not exposed to risks to their health or safety (Health and Safety at Work etc. Act 1974 and its relevant statutory provisions).
- 4.2 ONR does not require separate documentation where the WMP and SWESC satisfy all of the relevant licence conditions and statutory provisions. Operators may structure their documentation in other ways, and make use of other sources of information,

provided that they sensibly provide information and adequately demonstrate compliance.

- 4.3 ONR may decide to permission the licensee's activities associated with disposal to ensure control of safety is maintained through implementation of regulatory hold points.

## **5 Harmonised Regulation**

- 5.1 The Regulators believe that the WMP and SWESC, as described in the GRR, provide the basis for a harmonised ONR/environment agencies approach to regulation of land quality management (LQM) over the lifetime of the site, such that sites are brought to a condition that demonstrably complies with the environment agencies' requirements for release, and with relevant ONR nuclear safety requirements.
- 5.2 The environment agencies and ONR will work jointly to review and consider the adequacy of the WMP and SWESC in meeting their respective relevant regulatory requirements. This work will be in accordance with memoranda of understanding (MoU) between the ONR and each of the environment agencies. These provide mechanisms for co-ordinated regulatory advice and action.

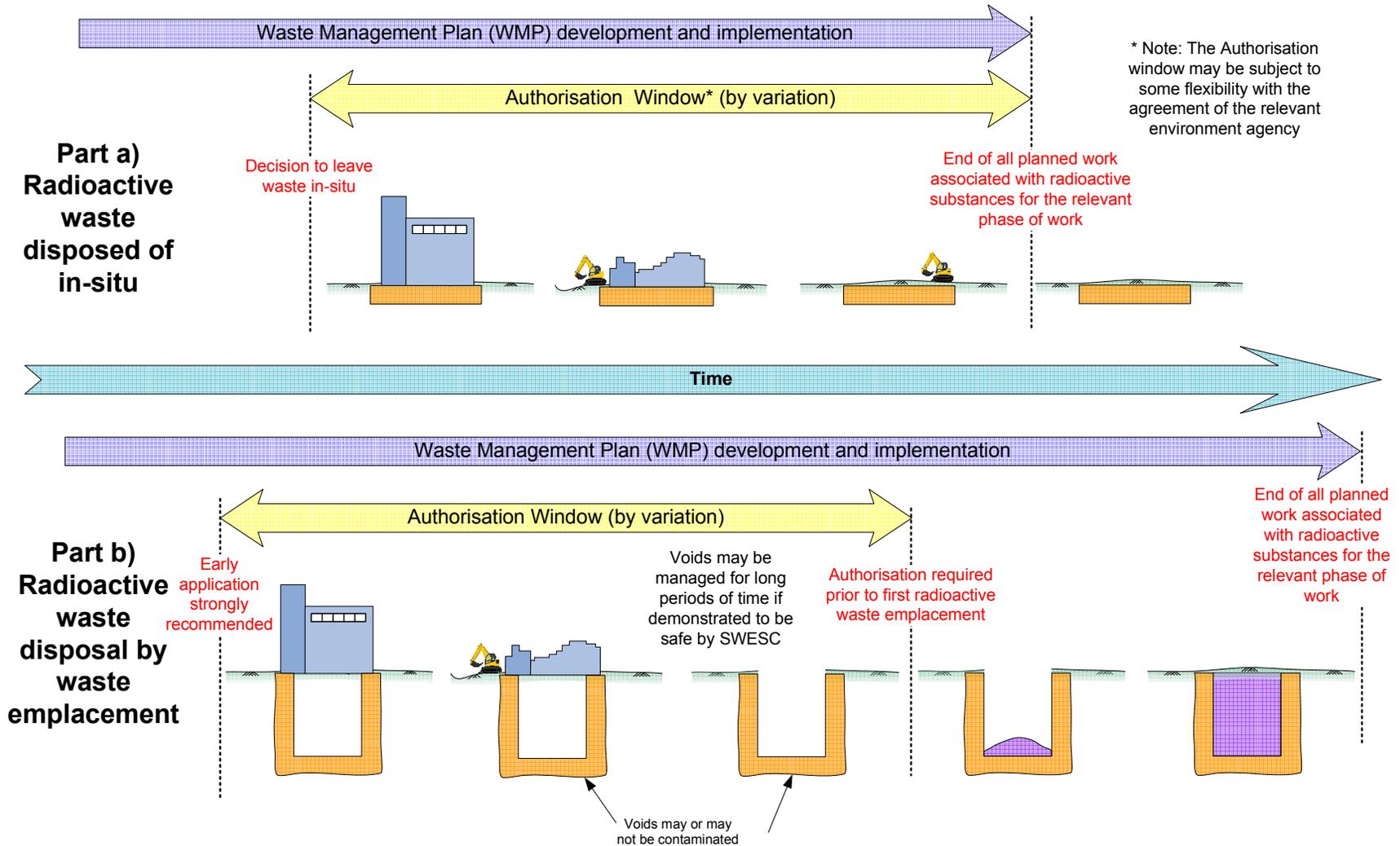
## **6 Other approvals**

- 6.1 The Regulators note that, in addition to the need for authorisation under RSR and safety legislation, operators may need other forms of approval before they can undertake the disposal of radioactive waste or indeed approval for the wider activity giving rise to the generation and disposal of radioactive waste (e.g. the demolition and decommissioning of nuclear facilities). Such requirements may include the need for a positive opinion from the EU under the Article 37 of the Euratom Treaty, planning permission under the relevant planning legislation and/or Environmental Impact Assessment (EIA).
- 6.2 It is neither appropriate nor lawful for the Regulators to dis-apply or mis-apply the requirements of RSR and safety legislation for the purposes of allowing operators to avoid other statutory provisions. Instead we will encourage operators to consider and seek confirmation of other such approvals at the earliest possible opportunity.

## Annex 1) Example of in-situ disposal

- A1) Figure 1 Part a) shows the timeline of a facility undergoing decommissioning, with part of an underground structure being left in-situ. If part of the structure will remain in-situ, and it is contaminated, either wholly or in part, above RSR out of scope values, then the residual structure becomes radioactive waste for the purposes of RSR, and an operator therefore requires an authorisation before it can be left in situ permanently. We encourage operators to apply early for such authorisation for the reasons set out in paragraphs 3.4 and 3.5. At the latest, operators will need to obtain authorisation before disposal activities commence.
- A2) Figure 1 Part b) shows the requirement for an authorisation before emplacing radioactive waste into an existing structural void. If a structural void is used in this way, and is itself contaminated with radioactivity above RSR out of scope values, then the operator does not require separate authorisation for disposal in situ of the structure. However, the application for authorisation for disposal of radioactive waste by emplacement into the structure must account for any in-scope radioactivity associated with the structure itself.
- A3) As already stated, the operator will need to set out its proposals for the structure in the WMP and SWESC. That will allow the environment agencies to assess the proposals and inform the operator whether the agencies are likely to authorise such prospective disposals when the operator applies.
- A4) It is at an operator's discretion when to apply for authorisation, which may be at any time during the authorisation window (see Figure 1). As already noted, the Regulators encourage operators to apply at the earliest practicable opportunity. This will normally be when they have completed the assessments in their WMPs and SWESCs, and have decided whether they intend to retrieve the waste for disposal elsewhere or to leave the waste in situ. In this way, operators may gain greater regulatory certainty about their ability to obtain authorisation to leave such waste in situ [subject to compliance with permit conditions at the time of disposal].
- A5) For a site where the decommissioning plan calls for a quiescent period it may be preferable to make applications to vary the authorisation at a number of strategic times depending on the need for the authorisations of disposals on the site and the overall programme of work. Figure 2 illustrates this with a simple schematic of a site with a long quiescent period prior to the site being put into its final configuration.

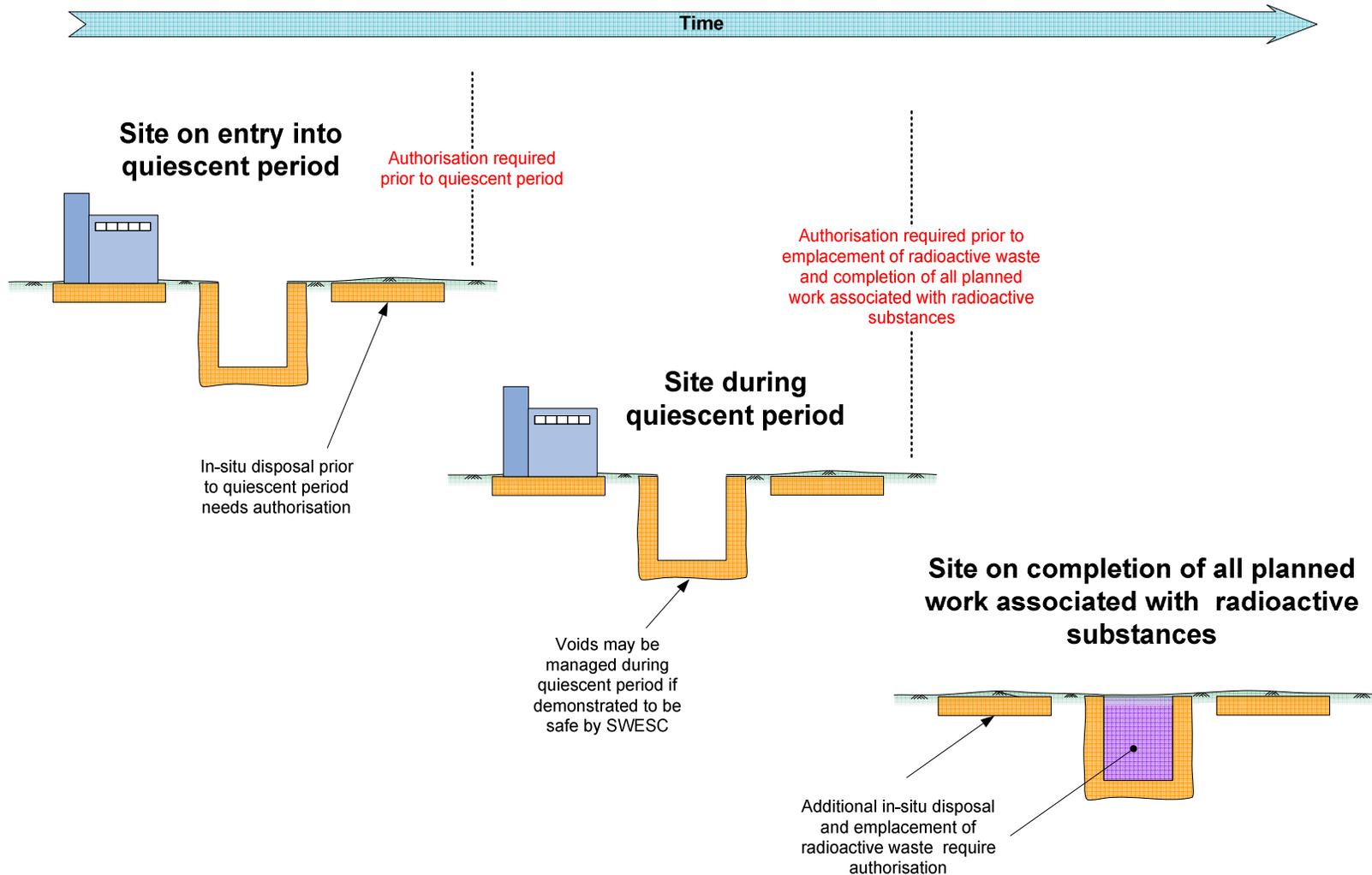
(a) **Figure 1** Timing for the authorisation of radioactive waste disposals



\* Note: The Authorisation window may be subject to some flexibility with the agreement of the relevant environment agency

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**Figure 2** Phasing of applications for authorisation of radioactive waste disposals



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