**SR2025 No 2: generic risk assessment – burial of human remains into unaltered or unweathered bedrock**

The Environment Agency produces the generic risk assessments for all standard rules permits. These list the potential risks and how to manage them.

This generic risk assessment covers activities set out in draft standard rules set SR2025 No.2, which can be viewed via the [consultation page](https://consult.environment-agency.gov.uk/environment-and-business/standard-rules-consultation-no-30-gw-activities) for these rules. Check this generic risk assessment to understand:

* the potential environmental risks associated with the burial of human remains into unaltered or unweathered bedrock
* how to manage the risks effectively

Each risk comprises:

* information about the source, pathway and receptor – and the potential harm to that receptor
* a judgement of the level of risk and justification of that judgement
* actions for managing the risk (through permitting) and a residual risk rating after managing it

Risk management involves breaking or limiting the source-pathway-receptor linkage to reduce the risk. We will control the residual risk (after risk management) when we assess compliance.

If you need to check the meaning of any terms we have used (in the context of this risk assessment), see the explanation of terms at the end of this document. To see the definition of technical terms, see the “Interpretation” section of the Standard Rules associated with this risk assessment.

This generic risk assessment is based on the following parameters.

**Parameter 1**

Permitted activities under schedule 22 3(1) are the burial of human remains into unaltered or unweathered bedrock.

**Parameter 2**

The number of burials per annum must be less than:

* 100 when located on strata which are a secondary B aquifer or secondary undifferentiated aquifer
* 50 when located on strata which are a secondary A aquifer
* 30 when located on strata which are a principal aquifer

**Parameter 3**

Where a cemetery is located on strata with different aquifer designations, the restrictions on number of burials per annum as described in parameter 2 apply to the area of the cemetery located on strata with that aquifer designation.

**Parameter 4**

A burial must not be undertaken directly into groundwater or in an area susceptible to groundwater flooding.

**Parameter 5**

A grave must have at least 1 metre clearance between the base of the grave and the top of the water table.

**Parameter 6**

Burials must not take place within a groundwater Source Protection Zone 1 (SPZ1), Source Protection Zone 2 (SPZ2), or Source Protection Zone 3 (SPZ3).

**Parameter 7**

A burial within a cemetery must not be within 10 metres of any field drain, including any dry ditch.

**Parameter 8**

A burial must not be within 30 metres of any spring or watercourse.

**Parameter 9**

A burial must be a minimum distance from certain types of sensitive receptors. It cannot be in or within:

* 50 metres of a wetland designated as a European site
* 50 metres of a Ramsar site
* 50 metres of a Local Nature Reserve (LNR)
* 50 metres of a biological Site of Special Scientific Interest (SSSI)

**Parameter 10**

A burial must not be within an ancient woodland.

**Parameter 11**

The cemetery must not be located within 250 metres of any well, spring or borehole that is used to supply water for domestic drinking or food production purposes.

**Parameter 12**

The cemetery must not have more than 2,500 burials per hectare, in proportion to the total area of the new cemetery or extension.

**Parameter 13**

A burial into bedrock must not take place if the overlying soil zone is greater than 2 metres in thickness.

**1. Risk to groundwater in underlying aquifers**

**1.1 Releases of hazardous substances and non-hazardous pollutants**

Hazardous substances (for example mercury) and non-hazardous pollutants (for example ammonia) are released from bodies and coffins as they decompose. These pollutants can migrate from the base of a grave down through soils and rock and reach the water table.

We have assessed the potential harm to groundwater resources as follows:

* impact upon the chemical quality of groundwater in the aquifer

**Judgement of risk**

We have judged the:

* likelihood of the hazard affecting the receptor as medium
* overall severity of potential consequences as medium
* overall risk rating as medium

The reasons for giving the activity this rating is because the decomposition of human bodies and coffins can lead to the input of pollutants into the groundwater- an important water resource.

**Managing the risk**

The following manages the risk:

* the activity has set burial limits per year based on the sensitivity of the underlying aquifer (parameters 2 and 3)
* the activity shall be managed and operated in accordance with a written management system
* no other emissions to groundwater are allowed other than the activities described within the permit

Taking these actions will further control the risk and rate it as ‘low’.

**2. Risk to public and private drinking water supplies**

**2.1 Releases of hazardous substances and non-hazardous pollutants**

Groundwater containing hazardous substances or non-hazardous pollutants released from human burials (described in 1.1) can migrate towards boreholes used to supply water for human consumption.

We have assessed the potential harm to drinking water supplies as follows:

* impact upon the chemical quality of groundwater
* impact upon public or private groundwater boreholes which supply water for domestic drinking or food production purposes

**Judgement of risk**

We have judged the:

* likelihood of the hazard affecting the receptor as low
* overall severity of potential consequences as high
* overall risk rating as medium

The reasons for giving the activity this rating is because the decomposition of human bodies and coffins can lead to the input of pollutants into the groundwater - an important water resource.

**Managing the risk**

The following manages the risk:

* burials are not allowed within groundwater Source Protection Zones 1, 2, or 3 (parameter 6), which are designed to protect public water supplies from pollution
* burials are not allowed within 250 metres of any well, spring or borehole used to supply water for domestic drinking or food production purposes (parameter 11)
* the activity shall be managed and operated in accordance with a written management system
* no other emissions to groundwater are allowed other than the activities described within the permit

Taking these actions will further control the risk and rate it as ‘low’.

**3. Risk to surface waters**

**3.1 Releases of hazardous substances and non-hazardous pollutants**

Groundwater containing hazardous substances or non-hazardous pollutants released from human burials (described in 1.1) can discharge into surface water features such as rivers, springs, or ponds.

We have assessed the potential harm to surface waters as follows:

* impact upon the chemical quality of surface water
* harm to surface water ecology
* visible signs of pollution to surface waters (such as discolouration)

**Judgement of risk**

We have judged the:

* likelihood of the hazard affecting these receptors as low
* overall severity of potential consequences as medium
* overall risk rating as medium

The reason for giving the activity this rating is that groundwater is often hydraulically connected to surface water, and contaminated groundwater could discharge into surface waters.

**Managing the risk**

The following manages the risk:

* burials are not allowed within 30 metres of a spring or watercourse (parameter 8)
* the activity shall be managed and operated in accordance with a written management system
* a condition within the permit to visually monitor any water features within the cemetery
* any breaches shall be reported

Taking this action will control the risk and rate it as ‘low’.

**3.2 Transport of hazardous substances or non-hazardous pollutants via rapid migration pathways**

Hazardous substances and non-hazardous pollutants released from human burials can migrate to surface water receptors along man-made pathways, such as field drains.

We have assessed the potential harm to surface waters as follows:

* impact upon the chemical quality of surface water
* harm to surface water ecology
* Visual signs of pollution to surface waters (such as discolouration)

**Judgement of risk**

We have judged the:

* likelihood of the hazard affecting these receptors as low
* overall severity of potential consequences as medium
* overall risk rating as medium

The reasons for giving the activity this rating is because man-made pathways can intercept pollutants from burial plots and drain them towards watercourses.

**Managing the risk**

The following manages the risk:

* burials are not allowed within 10 metres of any field drain, including any dry ditch (parameter 7)
* burials are not allowed within 30 metres of a spring or watercourse (parameter 8)
* the activity shall be managed and operated in accordance with a written management system
* a condition within the permit to visually monitor any water features within the cemetery
* any breaches shall be reported

Taking this action will control the risk and rate it as ‘low’.

**4. Risk to protected sites**

**4.1 Releases of hazardous substances and non-hazardous pollutants**

Protected sites are those set out in parameter 9.

Hazardous substances and non-hazardous pollutants released from human burials which enter groundwater can migrate within groundwater towards protected sites, or enter surface waters associated with those sites.

We have assessed the potential harm to protected sites as follows:

* impact upon the chemical quality of water at water-dependent protected sites
* impact upon habitats of biological protected sites as a result of changes in groundwater chemistry (such as nutrient enrichment)

**Judgement of risk**

We have judged the:

* likelihood of the hazard affecting the receptor as low
* overall severity of potential consequences as medium
* overall risk rating as low

The reasons for giving the activity this rating is because some protected sites are sensitive to changes in water chemistry.

**Managing the risk**

The following manages the risk:

* no burials are allowed within 50 metres of protected sites (parameter 9)
* burials are not allowed within 30 metres of a spring or watercourse (parameter 8)
* the activity shall be managed and operated in accordance with a written management system
* a condition within the permit to visually monitor any water features within the cemetery
* any breaches shall be reported

Taking this action will control the risk and rate it as ‘very low’.

**5. Risk to ancient woodlands**

**5.1 Releases of hazardous substances and non-hazardous pollutants**

Hazardous substances and non-hazardous pollutants derived from human burials which enter groundwater associated with ancient woodland can reach the receptor via root uptake.

We have assessed the potential harm to protected sites as follows:

* impact upon the health of trees within an ancient woodland as a result of changes in groundwater chemistry

**Judgement of risk**

We have judged the:

* likelihood of the hazard affecting the receptor as very low
* overall severity of potential consequences as medium
* overall risk rating as low

The reasons for giving the activity this rating is because ancient woodland trees may be sensitive to changes in water chemistry.

**Managing the risk**

The following manages the risk:

* no burials are allowed within an ancient woodland (parameter 10)

Taking this action will control the risk and rate it as ‘very low’.

**Explanation of terms**

**Receptor**

The things at risk and that need protecting.

Receptors considered include atmosphere, land, surface waters, groundwater, humans, wildlife and their habitats.

A single receptor may be at risk from several different sources and all must be addressed.

**Source**

The agent or process that has the potential to cause harm.

A contaminant or pollutant (a hazard) that has the potential to cause harm. For example, the activity or operation taking place for which a particular hazard may arise.

**Harm**

The harmful consequence to the receptor if the hazard is realised.

**Pathways**

The route or means by which a defined hazard may affect a receptor.

**Source-pathway-receptor linkage**

There has to be a link between the source, pathway and receptor for there to be a risk.

**Likelihood of exposure**

This is the likelihood of the receptors being exposed to the hazard. The meaning of the definitions are:

* high – exposure is probable – direct exposure is likely with no or few barriers between the hazard source and the receptor
* medium – exposure is fairly probable – feasible exposure is possible as the barriers to exposure are less controllable
* low – exposure is unlikely – several barriers exist between the hazard source and receptor to reduce exposure
* very low – exposure is very unlikely – effective, multiple barriers are in place to reduce exposure

**Overall magnitude of potential consequence**

This is the severity of the consequence if the hazard is realised and may cause actual or potential harm.

This will have a high, medium, low or very low rating using attributes and scaling to consider ‘harm’.

**Risk rating**

We work out the risk rating by combining the likelihood of exposure with the magnitude of the potential consequences.

We assign these ratings:

* high risk – requires additional assessment and active management
* medium risk – requires additional assessment and may need active management and, or monitoring (or both)
* low and very low risks will require a periodic review