

**WAT-G-059**

**EASR Guidance: Permit Activity: The construction, extension or operation of any borehole more than 200 metres in depth**

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# Purpose

This document provides information and guidance for anyone undertaking the construction, extension or operation, including the decommissioning, of any borehole with a depth of more than 200m which requires a permit under The Environmental Authorisations (Scotland) Regulations.

This guidance does not cover any other permissions that may be required.

# Understanding the activity

The construction of a borehole includes:

* The drilling of the borehole.
* The installation of pipe, called casing, and grout around it to seal the gap.
* The installation of a cap on top of the borehole.

The extension of a borehole means any work to increase the depth or diameter of the borehole.

The operation of a borehole covers the period after the borehole has been constructed until it is fully decommissioned. The borehole does not need to be in use.

The operation includes the decommissioning process. Decommissioning of a borehole means backfilling and/or sealing the borehole. In most cases the permit can be surrendered once the borehole is decommissioned to the satisfaction of SEPA.

This activity covers boreholes that are more than 200m in depth. The depth is measured from the ground surface.

In limited cases post decommissioning monitoring may be required and permit surrender cannot take place until this has been completed.

Your activity may produce naturally occurring radioactive material (NORM). You must ensure you understand the nature and amount of NORM your activity produces, as you may need to manage such NORM as a radioactive substance activity. Guidance on whether you can manage NORM in accordance with a general binding rule, or whether you will need to apply for authorisation to do so, can be found in [SEPA’s Authorisation guide for radioactive substances activities](https://www.sepa.org.uk/regulations/radioactive-substances/).

No authorisation is required for the discharge of uncontaminated groundwater that arises during the construction.

# Understanding and minimising risks to the water environment

The risk to the water environment from borehole construction and operation are set out in WAT-G-007: EASR Guidance: Borehole construction and decommissioning best practice. Boreholes greater than 200m in depth generally pose a higher risk to the water environment than shallower boreholes. This is because if they are inappropriately constructed, maintained or decommissioned these boreholes can act as potential pathways for deeper, poorer quality groundwater to migrate into shallow aquifer systems and surface receptors such as water supplies or watercourses.

# Carrying out multiple activities as a single permit activity

You can apply for multiple boreholes, and they will only be considered a single permit level activity, if they meet all of the following criteria:

1. If all boreholes are **temporarily open**, each borehole must be within 850m of another borehole; or

If all boreholes are **not** **temporarily open**, each borehole must be within 150m of another borehole; and

1. There are no lateral wells.

“**Temporarily open**” means that the boreholes:

* Are fully backfilled and de-commissioned within 28 days of being constructed; or
* Are part of a closed loop geothermal systems, and the pipework is quickly cemented in place within 28 days of being constructed.

If you meet these criteria, you should provide us with a map showing the area in which you intend to drill the boreholes. This can be a shape file.

If the boreholes do not meet all of these criteria, you can’t apply for them as a single permit level activity.

# Information required to support an application

You will need to show how you will carry out the work in a way that protects the water environment including how the construction will adequately isolate the borehole target formation from other groundwater units. You should consult our WAT-G-007: EASR Guidance: Borehole construction and decommissioning best practice for help on how to do this.

We recommend that you contact SEPA prior to making your application. Ideally before doing this, you will have carried out a water features survey. This is because if there are any nearby sensitive receptors you can discuss with SEPA whether you may need to propose and/or conduct monitoring to support your application.

You need to provide:

* **Construction details**

The construction details of the borehole. This should include depth, diameter, casing and temporary casing details, method of cementing, type of cement and depth over which casing is cemented, details of any horizontal drilling, the approach for managing and minimising grout and drilling fluid loss and handling any methane or artesian flow.

* **Hydrogeology**
* The details of strata through which the borehole is drilled. This should include the type of strata and depth.
* The location of receptors such as abstractions or surface water by completing a [water features survey](#_5.1_What_to).
* The location of any pathways to those receptors such as nearby faults, mineworkings or other deep boreholes. This should include proposals for appropriate stand-off distances from these features.
  + A hydrogeological risk assessment to show that the construction of the borehole is adequate to protect any water features you have identified, including groundwater. For example, this could be by explaining that the casing and grout is preventing deep saline groundwater reaching surface receptors and there are no preferential pathways in the vicinity to allow the migration of this saline water. This should be completed by a Groundwater Specialist.
* **The anticipated lifespan of the borehole and your proposals for decommissioning the borehole.**

The proposals for decommissioning should include a drawing showing a cross section of the borehole with the following features marked on it:

* + The depths over which the borehole will be backfilled.
  + The type of material which the borehole will be backfilled with.
  + Details of any casing that will remain and its condition.
  + The seal around the borehole top. For example, a concrete cap.

Our WAT-G-007: EASR Guidance: Borehole construction and decommissioning best practice provides further information.

* **Monitoring**

Monitoring may be required in some limited circumstances where the borehole(s) are drilled close to sensitive receptors as identified by the Water Features Survey. Monitoring could include baseline and post construction monitoring. In rare cases we may require post decommissioning monitoring. If you identify any sensitive water features close to your borehole you should discuss if monitoring is necessary with SEPA prior to making an application.

If monitoring is being proposed, you may be required to submit this to SEPA. If any adverse impacts are detected SEPA may require action to mitigate any impacts.

## 5.1 What to include in your water features survey

You should identify water features within an 850m radius of the borehole. If you are applying for more than one borehole on one application from because it meets the criteria in [Section 4](#_Are_you_carrying) you must measure the 850m from the edge of the area you have applied for. If you want to carry out an abstraction from the borehole that will require a permit then you may wish to consider the radius of water feature survey that will be required to support this this application.

Where horizontal drilling has taken place the water feature survey will need to take account of both the surface position and the position of the horizontal extent of the borehole.

The features should be marked on a map up-to-date map of convenient scale, preferably one based on the Ordnance Survey Landplan® 1:10 000 series.

The features to be identified include:

* Watercourses.
* Freshwater lochs, ponds and reservoirs.
* Groundwater dependent terrestrial ecosystems. WAT-G-064: EASR Guidance: Identifying groundwater dependent terrestrial ecosystems (GWDTE) provides information on how to do this.
* Areas of saline or potentially contaminated groundwater.
* Boreholes, wells and springs. You should specify use, depth and other construction details e.g. public water supply boreholes. The British Geological Survey can supply information concerning the location of some boreholes.
* Surface water and groundwater abstractions. SEPA hold information on abstractions registered or permitted under The Environmental Authorisation (Scotland) Regulations. Scottish Water holds information on the location of public water supplies. The local authorities have information on the location of private water supplies.
* Any relevant Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs). NatureScot can supply details.
* Location of any historic mine workings. Please contact the Mining Remediation Authority.

# Disclaimer

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SEPA reserves the right to depart from this guidance and take appropriate action as it considers necessary or appropriate. Operators are responsible for ensuring that they are compliant with the law. If necessary, independent legal / specialist advice should be sought.