

Guidance notes on registration of your ground source heating and cooling system as exempt from the need for an environmental permit



ENVIRONMENT
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Please read these guidance notes carefully before you fill in the form.

This guidance will help you complete the application form

Please also refer to:

- [Environmental good practice guide for ground source heating and cooling \(Environment Agency, 2011\)](#)

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Background information

We use a risk based approach to controlling activities that may impact the environment. Where an activity is likely to be a risk to the environment then an environmental permit (referred hereon as a “permit”) will be required for that activity. For lower risk activities we allow exemptions from permitting to be registered with conditions, or general binding rules. We do this under the Environmental Permitting (England and Wales) Regulations 2010 (EPR). You have to notify us of a registered exemption by completing and submitting this form.

There are two main types of ground source heating and cooling systems (referred to as “GSHC systems”):

Closed loop systems. These schemes consist of a closed piping system buried in the ground or groundwater and normally they do not introduce pollutants into the aquifer¹. These type of systems neither abstract nor discharge to groundwater and as such are not required to have a permit or to register an exemption with us.

Open loop systems. Open-loop schemes abstract groundwater within a borehole to pump through a heat exchanger before discharging the same water back to ground within another borehole. Compared to closed loop systems, these types of systems are considered to be higher risk as they involve a discharge to groundwater that may cause pollution and harm to the environment. Generally, we require a permit application to assess the risk of pollution and harm, and if the level of risk in that location is acceptable then we can issue a permit. If the open loop systems can be designed and operate to be within prescribed discharge and temperature constraints then they can be registered as a low risk activity.

Important note:

1. The registration will only cover the discharge aspect of the open loop GSHC system.
2. A registration is needed for each point of discharge, so if the open loop GSHC system includes multiple points of discharge then separate registrations are required.

For low risk open loop GSHC systems you will also need to:

- apply for consent to investigate a groundwater source before drilling or test pumping the abstraction boreholes. If the open loop GSHC system allows for the reversal of flow (so that the discharge point becomes a point of abstraction) then consent will be required for all boreholes. Consent is required under section 32 of the Water Resources Act 1991.

¹ Groundwater is water stored below the water table in rocks or other geological strata called aquifers

- apply for an abstraction licence if the volume of groundwater abstracted is greater than 20 cubic metres per day. If the system allows for the reversal of flow then the abstraction licence requirements cover all boreholes.

You will need to apply for a permit if you cannot satisfy the conditions for registration.

GSHC systems that discharge to surface waters are not covered by this registration.

Part A About you as operator of a GSHC system

A1 About you as the operator of the GSHC system

The operator is responsible for registration of the GSHC system. The operator is the only person who can notify us of a registration and is normally the person who owns and operates the system and generally is responsible for its maintenance. The details of other persons, for example house owner or leaseholder, are not required on the application if they are not the operator.

An individual

Please provide your title (Mr, Mrs, Ms, and so on), your full name, the address where you live with the postcode and your telephone and/or your mobile number (optional). Please provide your email address if you have one.

Small businesses and corporate organisations

Please provide your company name and company registration number. If you are notifying as a limited company, give the address of the registered office. Please also provide the email address of the company secretary.

Unregistered corporate bodies

If you are an unregistered corporate body, you will need to give us evidence that you are a legal entity.

A2 Different address

If the GSHC system is at a different address from that stated in Part A1, please provide the address and postcode, otherwise leave this blank. Individual or company details are not required if they are not the operator.

Part B About your GSHC system

B1 Discharge rate conditions

Low risk open loop GSHC systems must meet the conditions detailed in Table 1 and Table 2. If after registration the system does not comply with these conditions then you must cease the operation and apply for a permit. We would also recommend that you record flow and temperature during operation – this is advisory only and is intended to help you ensure that the system is operating efficiently and to confirm that you are complying with the conditions.

The ratios given in Table 1 of less than 0.8; within 0.8 to 1.2 and greater than 1.2 are calculated as follows:

$$ratio = \frac{\text{Discharge Temperature}}{\text{Abstraction Temperature}}$$

Note: For new applications we understand that you will not have five years data so your registration should be based on your system design constraints and then use the self monitoring of flow and temperature to control the system to be within the conditions.

Table 1. Explanation of discharge conditions

	Condition	Details
001	A cooled aquifer system with a volume of less than 1500 cubic metres per day	A cooled aquifer system is a system used for both heating and cooling and where in a 5-year period the ratio of the discharge water temperature to the abstracted water temperature is less than 0.8
002	A balanced system with a volume of less than 430 cubic metres per day	A balanced system is a system used for both heating and cooling and where in a 5-year period the ratio of the discharge water temperature to the abstracted water temperature is within the range 0.8 to 1.2
003	A heated aquifer system with a volume of less than 215 cubic metres per day	A heated aquifer system is a system used for both heating and cooling and where in a 5-year period the ratio of the discharge water temperature to the abstracted water temperature exceeds 1.2

Example calculation: Balanced system

Average temperature of water discharged = 13.5 degrees centigrade

Average temperature of water abstracted = 15.0 degrees centigrade

- The temperature ratio is $13.5 / 15.0 = 0.9$
- This is within the ratio 0.8 to 1.2 and would be considered to be a balanced system.
- The volume of water used within a low risk GSHC system must be less than 430 cubic metres per day.

B2 Further criteria

For registration of a low risk open loop GSHC system you must also confirm you will comply with the conditions listed in Table 2. If you cannot then you may need modify your design or apply for a permit. It is important that throughout the life of the GSHC system you adhere to these conditions. This is the responsibility of the operator.

B3 12-digit grid reference

A 12-digit grid reference is 2 letters followed by 10 numbers, for example AB 12345 67890. Using the [grid reference finder](#) enter the postcode and from the aerial photograph, simply identify as closely as possible the discharge location of the open loop GSHC system. Right click on the location and a grid reference will be provided. Please contact us if you need help with grid references.

Table 2. Conditions for registration of GSHC systems

Condition		Further details
1	Nothing will be added to the water within the system	If anything is added to the water within the system, for example any additives that could be used for de-scaling, then the activity will cease to be exempt.
2	The temperature of water discharged from the system will not exceed 25°C and will not vary by more than 10°C compared to the abstracted water	We recommend that you routinely record flow and temperature during system operation to help you to monitor this.
3	The system is not on a known contaminated site or where there has been previous contaminative use	If you are uncertain please contact your local authority for details of this.
4	Water from the system will not be discharged within 50 metres of a watercourse	A watercourse is every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows.
5	Water from the system will not be discharged within 50 metres of a groundwater-fed wetland	<p>A groundwater-fed wetland is a terrestrial ecosystem directly depending on a body of groundwater and includes:</p> <ul style="list-style-type: none"> • A European site (which has the meaning given in regulation 8 of the Conservation of Habitats and Species Regulations 2010) • A site of special scientific interest (which has the meaning given in section 52(1) of the Wildlife and Countryside Act 1981) <p>Please contact Natural England for further details.</p>
6	Water from the system will not be discharged within 50 metres of a point of groundwater abstraction	<p>This includes any water abstracted for any purpose and could be in the form of licensed abstractions, for example an irrigation borehole, as well as any small abstractions that may not be licensable such as a domestic well. It is the responsibility of the operator to identify all known abstractions.</p> <p>We hold details of abstractions greater than 20 cubic metres per day. We do not hold any details of other abstractions, including private abstractions.</p> <p>Mapping of abstraction licence locations and details of individual licences such as holder, purpose and permitted quantity is available from our website by follow this link:</p> <p>http://maps.environmentagency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=water_abstractions</p> <p>You can also request a list of licensed abstractions from our National Customer Contact Centre (NCCC).</p>

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7	Water from the system will not be discharged within a groundwater source protection zone 1 (SPZ1) or within 50 metres of a groundwater abstraction point that is used to supply water for domestic or food production purposes	<p>A SPZ1 is an area where groundwater that is abstracted for human consumption and / or food production purposes is protected. Larger abstractions require licences and we put the details of these on our website (Interactive maps of groundwater and search for Inner Zone 1.'). The zone is based on a 50-day travel time for potential pollutants to impact upon the abstraction. The zones have a default radius of 50 metres but where they have been modelled on travel times the zone may be much larger.</p> <p>All private abstractions (private water supplies) have a default radius of 50 metres. It is important that you find out if there are any private abstractions within 50 metres of the discharge point(s). We do not hold details of these abstractions and they will not be included on our interactive maps.</p>
8	The abstraction and discharge will be within the same aquifer	<p>Groundwater is water stored below the water table in rocks or other geological strata called aquifers. Different geological strata below your site may be separated and not connected and therefore, could be different aquifers. You must not allow the flow from one aquifer to another without a permit. The borehole driller will be able to confirm that the abstraction and discharge are within the same aquifer.</p> <p>If you change the point of discharge then your registration is no longer valid and you will need to notify us of a new registration or apply for an environmental permit.</p> <p>The same quantity of water abstracted must be discharged back to the same aquifer. If you cannot comply with this condition you will need to modify your design or apply for a permit.</p> <p>Under this condition you cannot abstract from or discharge to surface waters (such as rivers, streams, lakes, ponds and the sea).</p>
9	Water within the system must not be used for any other purpose	You cannot use the water or link the open loop system for any other operation, for example a "grey water" system.

General information

Binding Conditions

For registration of an open loop GSHC system that involves discharges to groundwater you must comply with the conditions in Table 1 and Table 2. If you cannot comply with the conditions, either at registration or during the operational life of the GSHC system then you will need to modify your design or apply for a permit.

You do not need a registration or a permit for a closed loop GSHC system.

Abstraction Licenses

The registration only applies to the discharge aspect of the GSHC system. You will still need to apply for a groundwater investigation consent to drill boreholes and an abstraction licence if the groundwater abstraction is greater than 20 cubic metres per day.

Applying for an environmental permit

If you need to apply for a permit please visit: <http://www.environment-agency.gov.uk/business/topics/148414.aspx> or contact us.

Fees

For the discharge aspect of the GSHC system there is no charge for registration and no yearly subsistence charges.

However, for the abstraction licence aspect of the GSHC system, there will be a £135 application fee and an annual charge of £25 (as at March 2014).

Home owners and Occupiers

It is the responsibility of the operator to register the low risk GSHC system. We suggest that new occupiers should be informed of the GSHC system and be given the operator contact details. As only the operator is named on the registration there is no requirement to amend the registration for new occupiers.

Change in operator details

If the details of the operator changes, for example a company title change or the ownership of the scheme is passed on, then the registration cannot be transferred and a new registration is required.

Recording temperature and flow

There is no requirement in the registration to monitor or store records of flow and temperature but we recommend that you do. The flow and temperature data, together with regular servicing and maintenance, will help to maintain and improve the efficiency of the GSHC system as well as monitoring compliance with Table 1 and Table 2.

Decommissioning

If the GSHC system is no longer needed then please tell us and we will remove the discharge from the register and revoke the abstraction licence. We would recommend that any boreholes that are to be decommissioned should be done in accordance with our [good practice for decommissioning redundant boreholes and wells](#). Please contact us if you wish to use your abstraction borehole for other uses (such as drinking water or irrigation) if you no longer need it for your GSHC system.

Applying for a renewable heat incentive

The renewable heat incentive (RHI) pays participants of a scheme that generates and uses renewable energy to heat their buildings. By increasing the generation of heat from renewable energy sources (instead of fossil fuels), the RHI helps the UK reduce greenhouse gas emissions and meet targets for reducing the effects of climate change. The RHI is the main scheme within the Department of Energy and Climate Change (DECC) heat strategy. For further details please go to the DECC website: www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies/supporting-pages/renewable-heat-incentive-rhi

Part C Declaration

Completing the declaration confirms that you have read the guidance, understood and accepted the specific conditions and limits of the registration and that you will keep to them.

National security

If you have claimed confidentiality you must include your copy of the decision letter from the Secretary of State.. We will not be able to progress your registration until we receive the decision from the Secretary of State and therefore, this is likely to delay your registration.

Where to send the completed form

Post the completed form to this address:

P&SC Water Quality Team
Environment Agency
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF.

Or emailed to: PSC-WaterQuality@environment-agency.gov.uk

What happens next?

When we receive your form we will check whether or not the discharge can be registered. If for any reason the open loop system cannot be registered then we will write to let you know what you need to do.

We will send you details of your successful registration or we will write to tell you what action you need to take within three weeks of receipt of the registration form.

How to contact us

If you would like help filling in this form or guidance on registrations, you can find information on our website or you can contact us using one of the options listed below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 08702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: <http://www.environment-agency.gov.uk/homeandleisure/118753.aspx>

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.