



# Guidance on SEPA's reservoir registration process

## Reservoirs (Scotland) Act 2011

We are the Scottish Environment Protection Agency (SEPA). As Scotland's environmental regulator we protect and improve the environment by helping business and industry to understand their environmental responsibilities, enabling customers to comply with legislation and good practice and to realise the many economic benefits of good environmental practice.

We are a non-departmental public body, accountable through Scottish Ministers to the Scottish Parliament, and are experienced in providing advice and guidance to business, industry and the public on environmental best practice.

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# 1. Introduction

# 1. Introduction

SEPA are the regulatory authority for reservoir safety in Scotland. Our responsibility for reservoir safety contributes to our strategic role in flood risk management, introduced by the Flood Risk Management (Scotland) Act 2009, by enabling a more streamlined and consistent approach to flood risk management.

Ensuring that reservoirs are correctly managed and maintained is essential. They provide Scotland with drinking water, power, resources for business and social amenities. The consequences of poor management and maintenance could be devastating and lead to a serious risk of flooding which impacts our communities, businesses, infrastructure and environment. We are managing this risk more efficiently through effective regulation.

Reservoir safety legislation is relatively new within the UK, with laws coming into effect in 1930. The Reservoirs (Safety Provisions) Act 1930 was passed following two major dam failures in 1925, which led to the deaths of 21 people. This legislation was followed by the Reservoirs Act 1975 (the 1975 Act). The 1975 Act was enforced by Scotland's 32 local authorities, with approximately 660 reservoirs falling within its remit. The new legislation, namely the 2011 Act, is now improving the regulatory landscape and changing our roles and responsibilities.

Prior to the implementation of the 2011 Act, SEPA undertook significant engagement with local authorities, panel engineers and reservoir managers to help inform our planning and development of key processes and systems. As a result of this work, and the completion of the registration process, SEPA now has a comprehensive database which contains details of all the reservoirs to which the 1975 Act applied.

As a modern regulator we proactively engage with the reservoir industry to increase your awareness of responsibilities under the 2011 Act and provide support, where possible, to help reservoir managers comply with the legislation.

We will help to support the reservoir industry through a suite of guidance documents that offer advice and good practice on how to fulfil the requirements of legislation. This supports reservoir managers by identifying the specific roles and responsibilities brought in by the 2011 Act. All guidance documentation can be found at [www.sepa.org.uk/reservoirs](http://www.sepa.org.uk/reservoirs). If you require a hard copy to be sent to you please email [reservoirs@sepa.org.uk](mailto:reservoirs@sepa.org.uk) or call 03000 996699 to be put through to the Reservoir Regulatory Unit.

# 2. Pre-registration requirements

2.1 What is a 'controlled reservoir'

2.2 Pre-registration notification (for newly constructed or alteration of controlled reservoirs)

## 2.1 What is a ‘controlled reservoir’?

Under section 1(2) of the 2011 Act a controlled reservoir is any of the following structures or areas which is capable of holding 10,000 cubic metres (m<sup>3</sup>) or more of water above the natural level of any part of the surrounding land—

- (a) a structure designed or used for collecting and storing water,
- (b) an artificial (or partly artificial) loch or other artificial (or partly artificial) area.

In addition section 1(3) of the 2011 Act states that a combination of more than one of the structures or areas referred to in (a) or (b) above is to be treated as a controlled reservoir where none of the individual structures or areas is a controlled reservoir under subsection (2) but—

- (a) water does (or could) flow between them, and
- (b) there could be an uncontrolled release of 10,000m<sup>3</sup> or more of water from the combination.

(Section 2 of the 2011 Act also provides supplementary provisions on interpretation of the term controlled reservoirs including what structures and areas are not controlled reservoirs)

The duty to register each controlled reservoir falls to the reservoir manager and section 3 of the 2011 Act determines who this person is or who these persons are. For further information regarding reservoir managers and their duties please see SEPAs ‘*Guidance on the management of controlled reservoirs by reservoir managers*’ which can be found at [www.sepa.org.uk/reservoirs](http://www.sepa.org.uk/reservoirs).

Sites becoming a controlled reservoir, either newly constructed or altered, must be registered by the reservoir manager with SEPA not later than 28 days after the day on which a preliminary certificate is given for the first time.

Those existing sites that will fall under regulation for the first time due to the lowering of the volumetric threshold to 10,000m<sup>3</sup> will be required to register with SEPA.

The reservoir managers of these sites will be required to supply, at the point of registration, the data noted in section 5.1 ‘List of data requirements’ for sections for reservoir manager details, owner details and reservoir and dam details. As yet there is not a scheduled timeframe for commencing registration of these sites

## 2.2 Pre-registration notification (for newly constructed or alteration of controlled reservoirs)

Before undertaking construction of a controlled reservoir it will be necessary for the reservoir manager to have contacted SEPA on a number of occasions as directed by the 2011 Act.

The 2011 Act (section 33 (1)) requires reservoir managers to notify SEPA at least 28 days before work commences.

In addition the reservoir manager must appoint a construction engineer and notify SEPA of this appointment at least 28 days before works begin.

To adhere to these two sections and as part of the notification requirement, SEPA will request a limited amount of data regarding the proposed works and details of the construction engineer that has been appointed.

The data that will be requested is;

- Name of **reservoir manager(s)**
- Contact details of reservoir manager(s)
  - Contact name of person (if organisation)
  - Address
  - Email
  - Landline phone number
  - Mobile phone number
  - Emergency contact information (out of hours contact)
  
- Contact details of **construction engineer**
  - Contact name
  - Address
  - Email
  - Landline phone number
  - Mobile phone number
  - Emergency contact information (out of hours contact)
  - Date of appointment
  
- **Reservoir details**
  - Name of reservoir
  - National Grid Reference (8 figure minimum)

Once this has been received SEPA will assign a unique reference number for this site, which should be used in all further correspondence.

Following this process a reservoir manager or the construction engineer may again be required to supply SEPA with further information prior to registration. This situation may occur should the construction engineer issue a safety report to the reservoir manager. If a safety report is issued then a copy of it must be supplied to SEPA by the construction engineer not later than 28 days after being issued to the reservoir manager.

Where a safety report has been issued which contains measures in the interests of safety, the construction engineer must, not later than 28 days after being satisfied that each measure within the safety report has been taken, issue a safety measure certificate to the reservoir manager. Thereafter a copy of the safety measure certificate must be given to SEPA within 28 days of issue.



When the construction engineer considers that the reservoir may safely be filled, either wholly or partially with water they must as soon as reasonably practicable provide the reservoir manager with a preliminary certificate. A copy of the preliminary certificate must be provided to SEPA by the construction engineer within 28 days of issue.

Registration of a reservoir by the reservoir manager must occur not later than 28 days after the day on which a preliminary certificate is issued to the reservoir manager for the first time for that reservoir.

**A reservoir manager must notify SEPA 28 days prior to the commencement of construction of a controlled reservoir.**

# 3. Data requirements for registration

## 3.1 Registration data

## 3.1 Registration data

SEPA require reservoir managers to supply a significant amount of data at the point of registration. This data includes such things as reservoir manager's name and contact details, correspondence details, as well as reservoir and dam details. A full listing of the data that is required is contained within section 5.1 of this guidance.

Much of this information is straightforward but other aspects may be more challenging, especially for reservoir managers who have no previous experience of reservoir regulation.

Most of the data that is requested, specifically that associated with the dam or reservoir, is required to enable SEPA to either review or produce the reservoir inundation map for that site.

SEPA collected data on sites that were registered with the local authorities under the 1975 Act. For these sites, SEPA will re-supply this data under the headings noted below, to the reservoir manager, and ask them to complete data gaps and confirm that the data is correct.

As these sites are already operational and being regulated there will be additional information that will be required of them at the point of registration. This additional information is noted below in the sub section titled 'Inspection data'.

To support reservoir managers in the registration process, this section of the guidance document will now provide further explanations of the data that will be requested.

### **Reservoir manager, owner and construction engineer details**

- **Reservoir manager**

Any person (or organisation) who manages or operates the reservoir or any part of it, other than the owner of it. It can be the owner themselves if no-one else operates or manages the reservoir. Where there are multiple reservoir managers for a site we will require information on all parties. Thereafter we will require notification of the 'nominee' who will act as the single point of contact.

- **Reservoir manager contact details**

If the reservoir manager is an organisation then these contact details should relate to the registered office of that organisation or business.

- **Emergency contact information**

We must ensure that if an emergency situation arose outside of normal operating hours, we would be in a position to contact the relevant people within your business or organisation.

- **Other contact details**

Information should be provided here for a specific purpose, e.g. Day-to-day contact details, billing details, address for notices or general correspondence.

- **Reservoir owner**

The reservoir owner may differ from the reservoir manager in certain cases e.g. the reservoir has been leased from a landowner for commercial or recreational purposes and the owner of the lease becomes the Reservoir Manager. In this circumstance we would like their contact details in case we have difficulties in contacting the reservoir manager, especially if an emergency situation arises.

- **Construction engineer details**

These details will have already been supplied, so it will be a case of confirming the data is still correct.

- **National Grid Reference of reservoir**

This should be an 8 figure grid reference with it located centrally within the reservoir. An 8 figure grid reference is normally composed of two letters, followed by 8 figures, such as NN 1234 5678. If you are having difficulty working out your grid reference there are a number of websites on the internet that could help you with this process.

- **Status of reservoir** (only required for sites already regulated under Reservoirs Act 1975)

Under the Reservoirs Act 1975 your reservoir can be deemed to be abandoned, as per the definition within the Act, but is still required to be registered and monitored by the supervising engineer. Therefore we wish to know if your site is either 'in construction', 'in operation', 'abandoned' or 'discontinued'. If you have any uncertainty your supervising engineer should be able to clarify this.

- **Top Water Level in mAOD**

The Top Water Level is defined by the lowest fixed spillway crest or other overflow mechanism. mAOD means 'metres above ordnance datum' and is used as a reference point for the level or altitude of any point, with ordnance datum being sea level at Newlyn, Cornwall. This information may be included in technical drawings or diagrams produced for your reservoir. Alternatively it may be necessary to undertake some surveying to gain this information or you may wish to speak to your supervising engineer about this.

- **Maximum Surface Water Area at Top Water Level (square metres)**

This is the area in square metres that the reservoir's surface occupies when at top water level. This can be estimated by multiplying the length of the reservoir by its average width. More sophisticated methods are available to obtain an accurate surface area.

- **Maximum Surface Water Area at Dam Crest Level (square metres) (if known)**

This is the area in square metres that the reservoir's surface occupies when at dam crest level. This can be worked out approximately by multiplying the length of the reservoir by its average width. More sophisticated methods are available to obtain an accurate surface area.

- **Maximum Cubic capacity of reservoir at Top Water Level (cubic metres)**

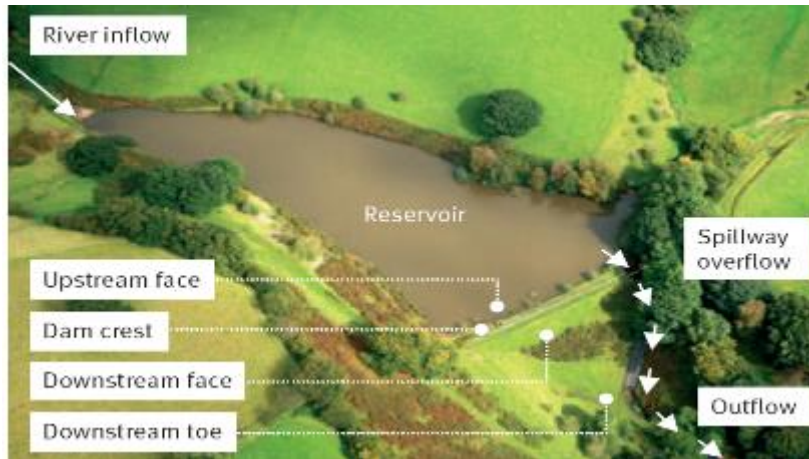
This should be the total amount of water that can be stored in the reservoir when it is full, using top water level as the highest level to measure from. The figure should be supplied in cubic metres.

- **Maximum Cubic capacity at Dam Crest Level (cubic metres) (if known)**

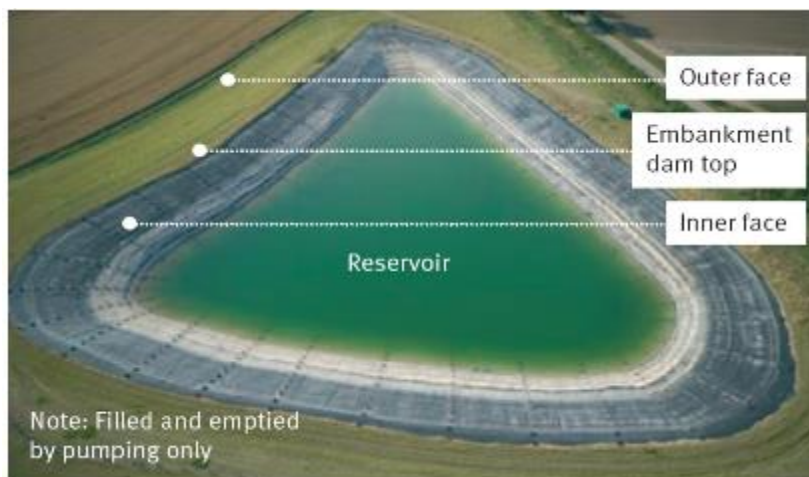
This should be the total amount of water that can be stored in the reservoir when it is full, using dam crest level as the highest level to measure from. The figure should be supplied in cubic metres.

- **Reservoir type**

There are three types of reservoir; impounding, non-impounding and service reservoir. Impounding reservoirs are usually formed by placing a dam across a natural watercourse causing water to build up behind it. Non-impounding reservoirs are usually formed by the construction of embankments on all sides of the reservoir with water having to be transferred into them, normally by pumping. Service reservoirs are generally concrete or masonry box structures, used primarily for public water supply.



Impounding reservoir



Non-impounding reservoir

- **Primary purpose of stored water**

We would like to know what the main purpose of the stored water is and will provide a drop down list to choose from, the list will include: agriculture, industrial /commercial, amenity, fish production, flood defence, hydropower, private drinking water supply or public drinking water supply. If the purpose of your reservoir does not fall into the above categories please advise what the main purpose is.

- **Dam details**

This section will need to be repeated if there are multiple dams associated with the reservoir(s).

- **Name of dam**

Enter name of dam if one given to structure. This will help us identify it, especially where there is more than one dam associated with the reservoir.

- **National Grid Reference**

This should be an 8 figure grid reference with it located centrally along the dam. An 8 figure grid reference is normally composed of two letters, followed by 8 figures, such as NN 1234 5678. If you are having difficulty working out your grid reference there are a number of websites on the internet that could help you with this process.

- **Principal material used in construction of the dam**

A drop down list containing the main dam construction materials will be available for you to choose from. The dam construction materials available to be chosen will include earth, concrete, masonry or rockfill. If the construction of the dam does not fall into these categories please advise the type of construction.

- **Dam type**

You will be asked what type of dam you own or operate. You can choose from the drop down list, which will contain six options: arch, buttress, embankment, gravity arch, service or gravity. Arch dams are normally made from concrete. They are curved in the shape of an arch, with the crown of the arch pointing back into the water. Buttress dams are made from concrete or masonry. They have a watertight upstream side supported by triangular shaped walls, called buttresses. The buttresses are spaced at intervals on the downstream side. Embankment dams are made mainly from natural materials. The two main types are earthfill dams and rockfill dams. A gravity dam is made from concrete or masonry, or sometimes both. It is called a gravity dam because gravity holds it down to the ground stopping the water in the reservoir pushing it over.



**Embankment Dam**



**Gravity Dam**



**Arch Dam**



**Buttress Dam**

- **Maximum height of the dam**

Please advise the maximum height of the dam in metres from the lowest natural ground level adjacent to it to the top of the dam excluding the height of the wave wall.

- **Bottom level of the dam (at ground level) in mAOD**

Please advise the bottom level of the dam in mAOD.

- **Dam Crest Level in mAOD**

Please advise the crest level of the dam in mAOD.

- **Crest length (in metres)**

The length of the top of a dam from left abutment to right abutment, including the length of spillway, powerhouse, navigation lock, fish pass, etc. where these appurtenances form a structural part of the dam. If detached from the dam, these structures are not included.

- **Escapable volume of water held back by dam at Top Water Level or Dam Crest Level in cubic metres (if available)**

There are situations where a reservoir holds more water than is actually held back by the dam, such as when a natural loch has been raised. If this occurs at your reservoir, and you know the actual volume of water held back by the dam, then please supply it here, otherwise just include total volume held in the reservoir as per previous section.

- **Fetch length and direction (if available)**

Fetch is the length of water over which a given wind will blow. The length of the fetch will generally dictate the size of waves, with greater fetches generating larger waves. Therefore we would like an indication of the maximum fetch length across the reservoir to the dam, along with the direction of travel of the wind. For direction please indicate the direction from which the wind blows to reach the dam, such as NE, SSW etc.

## **Inspection data**

This section is only required to be completed for sites which were regulated under the Reservoirs Act 1975.

- **Date of last Section 10 inspection and details of the inspecting engineer who undertook the inspection**

Can you please confirm the date of the last section 10 inspection (statutory inspection by an inspecting engineer) and confirm the details of the inspecting engineer.

- **Date of next Section 10 inspection**

Can you please confirm the date of the next section 10 inspection? This is normally stated in the inspection report given to you by the inspecting engineer.

- **Did the last Section 10 inspection include any measures in the interest of safety which are still outstanding**

Measures in the interest of safety will be contained in the inspecting engineers report if any have been identified. You can also confirm with the reservoir supervising engineer or by consulting the supervising engineer's annual statement.

- **If yes please give details, including any dates stated in the report when these works should be completed by.**

Again this information can be found in the latest copy of the inspection report that you have been given. We would like to know what these outstanding measures are, as described in the report. Where a completion date has been stated and included in the inspection report we would like this confirmed.

As well as supplying the data noted above at the point of registration there will be a requirement for the reservoir manager of any newly constructed reservoir to supply reservoir inundation mapping outputs. These outputs must be produced in accordance with SEPA's '*Reservoir inundation mapping methodology*' which is available at [www.sepa.org.uk/reservoirs](http://www.sepa.org.uk/reservoirs). Please note that any queries regarding the production of a reservoir inundation map should be raised with SEPA as early as possible in the process by emailing [reservoirs@sepa.org.uk](mailto:reservoirs@sepa.org.uk) or calling 03000 996699 to be put through to the Reservoir Regulatory Unit.

These maps are required to enable SEPA to undertake the risk designation process for newly registered reservoirs and also for a copy of the outline inundation map to be uploaded to the public register. For reservoirs that were registered under the Reservoirs Act 1975, SEPA will produce an inundation map.

Once the registration process is complete, SEPA will assign a 'provisional' risk designation to the reservoir as soon as reasonably possible.

These designations are based on the impact of an uncontrolled release of water on a number of receptors, with the designations being either, high, medium or low.

Thereafter SEPA will notify the reservoir manager of this 'provisional' risk designation and outline the reason for the designation.

Further information on SEPA's risk designation process and methodology is available at [www.sepa.org.uk/reservoirs](http://www.sepa.org.uk/reservoirs)



# 4. Other data requirements

## 4.1 Other notification requirements post registration

## 4.1 Other notification requirements post registration

Once the reservoir manager has completed the registration process, there are a number of occasions when they or their engineer must provide SEPA with further data or information.

The construction engineer, as soon as they are satisfied that the construction of the reservoir has been completed to a satisfactory standard, must issue a construction certificate to the reservoir manager. A copy of this construction certificate must be sent to SEPA no later than 28 days after its initial issue, by the construction engineer.

Thereafter the construction engineer must issue a final certificate within 28 days after being satisfied that the reservoir is sound and may be safely used. Following this, a copy of the final certificate must be sent to SEPA within 28 days and again it is the duty of the construction engineer to supply this.

The obligation of a reservoir manager to appoint a construction engineer in respect of the relevant works terminates when the construction engineer gives a copy of the final certificate to SEPA.

On issue of the final certificate to the reservoir manager the reservoir manager of High or Medium risk sites must employ a supervising engineer immediately.

Once a supervising engineer has been employed, the reservoir manager must notify SEPA within 28 days of this appointment. SEPA will require the following details;

- Supervising engineer name
- Address
- Email
- Landline phone number
- Mobile phone number
- Emergency contact information (out of hours contact)

It should be noted that if the reservoir manager changes their supervising engineer then SEPA must be notified and provided with the revised contact details.

For reservoirs that are designated as High risk the reservoir manager must appoint an inspecting engineer, to undertake the first inspection, within 2 years from the date of issue of the final certificate. When an inspecting engineer has been appointed the reservoir manager must notify SEPA within 28 days of appointment. SEPA will require the following information;

- Inspecting engineer name
- Address
- Email
- Landline phone number
- Mobile phone number
- Emergency contact information (out of hours contact)

Where further appointments of inspecting engineers follow, SEPA must be notified and relevant details provided.

At medium risk sites, inspecting engineers are only required when requested by the supervising engineer. Where this situation arises the reservoir manager has 28 days in which to notify SEPA of the appointment, and at this stage SEPA would request the data noted above.

# 5. Further Information

5.1 List of data requirements as per registration process

5.2 Frequently asked questions

5.3 Sources of information

5.4 Glossary

## 5.1 List of data requirements as per registration process

Registration Process	Information Required
Confirmation of <b>reservoir manager(s)</b>	<ul style="list-style-type: none"> <li>• Contact name of person (if organisation)</li> <li>• Address</li> <li>• Email</li> <li>• Landline phone number</li> <li>• Mobile phone number</li> <li>• Emergency contact information (out of hours contact).</li> </ul>
Other contact details (for correspondence/billing/notices)	<ul style="list-style-type: none"> <li>• Contact name of person (if organisation)</li> <li>• Address</li> <li>• Email</li> <li>• Landline phone number</li> <li>• Mobile phone number.</li> </ul>
Contact details of <b>reservoir owner</b> (if different from reservoir manager)	<ul style="list-style-type: none"> <li>• Contact name</li> <li>• Address</li> <li>• Email</li> <li>• Landline phone number</li> <li>• Mobile phone number</li> <li>• Emergency Contact Information (out of hours contact).</li> </ul>
Confirmation of <b>construction engineer</b> details	<ul style="list-style-type: none"> <li>• Contact Name</li> <li>• Address</li> <li>• Email</li> <li>• Landline phone number</li> <li>• Mobile phone number</li> <li>• Emergency contact information (out of hours contact)</li> <li>• Date of appointment.</li> </ul>
<b>Supervising engineer</b> details ( <i>this will be required at point of registration for sites already registered under the Reservoirs Act 1975 or post registration for newly constructed/altered reservoirs</i> )	<ul style="list-style-type: none"> <li>• <b>Supervising engineer</b> name</li> <li>• Address</li> <li>• Email</li> <li>• Landline phone number</li> <li>• Mobile phone number</li> <li>• Emergency contact information (out of hours contact)</li> <li>• Date of appointment.</li> </ul>
<b>Inspecting engineer</b> details ( <i>this will be required at point of registration for sites already registered under the Reservoirs Act 1975 or post registration for newly constructed/altered reservoirs</i> )	<ul style="list-style-type: none"> <li>• <b>Inspecting engineer</b> name</li> <li>• Address</li> <li>• Email</li> <li>• Landline phone number</li> <li>• Mobile phone number</li> </ul>

	<ul style="list-style-type: none"> <li>• Emergency contact information (out of hours contact).</li> </ul>
Reservoir details	<ul style="list-style-type: none"> <li>• Name of reservoir</li> <li>• National Grid Reference (8 figure minimum)</li> <li>• Status of reservoir</li> <li>• Top Water Level in mAOD</li> <li>• Maximum surface Water Area at Top Water Level in square metres</li> <li>• Maximum surface Water Area at Dam Crest Level in square metres (if known)</li> <li>• Maximum cubic Capacity of reservoir at Top Water Level in cubic metres</li> <li>• Maximum cubic Capacity at Dam Crest Level in cubic metres (if known)</li> <li>• Reservoir type (impounding, non-impounding or service reservoir)</li> <li>• Primary purpose of stored water (public drinking supply, hydro power, amenity, other).</li> </ul>
Dam details <i>(repeated if more than one dam associated with the reservoir)</i>	<ul style="list-style-type: none"> <li>• Name of dam</li> <li>• National Grid Reference (8 figure minimum)</li> <li>• Principal material used in construction of the dam (earth, concrete, masonry or rock fill etc)</li> <li>• Dam type (arch, buttress, embankment, gravity, gravity arch or service)</li> <li>• Max height of the dam in metres</li> <li>• Bottom level of the dam (at ground level) in mAOD</li> <li>• Dam crest level in mAOD</li> <li>• Crest length in metres</li> <li>• Escapable volume of water held back by dam at Top Water Level of Dam Crest Level in cubic metres (if available)</li> <li>• Fetch length and direction (if available)</li> <li>• Year dam completed.</li> </ul>
Inspection data <i>(only required for sites already registered under the Reservoirs Act 1975)</i>	<ul style="list-style-type: none"> <li>• Date of last section 10 inspection and details of the Inspecting Engineer who undertook the inspection</li> <li>• Date of next section 10 inspection</li> <li>• Did the last section 10 inspection include any measures in the interest of safety which are still outstanding</li> <li>• If yes, please give details including any dates stated in the report when these works should be completed by.</li> </ul>

## 5.2 Frequently asked questions

Here are some frequently asked questions relating to the new regulations for reservoirs in Scotland. If your question is not covered please look at the sources of information section (p28). A glossary is also included (p29) to help you understand some of the new terms and concepts associated with the 2011 Act.

### **Q. Does the 2011 Act apply to all reservoirs?**

**A.** When fully implemented only those reservoirs or cascades of reservoirs capable of holding at least 10,000m<sup>3</sup> of water above the natural level of any part of the surrounding land.

### **Q. How many reservoirs are regulated by 2011 Act?**

**A.** There are currently around 690 reservoirs regulated in Scotland under the Reservoirs (Scotland) Act 2011. In addition to these sites it has been estimated that a further 800 to 850 reservoirs could fall under the 2011 Act when the registration for reservoirs that hold, or are capable of holding, 25,000 cubic metres of water above natural ground level is reduced to 10,000 cubic metres of water above natural ground level.

### **Q. Who is responsible for enforcing reservoir safety?**

**A.** SEPA is the regulatory authority for reservoirs in Scotland. We took over responsibility for the enforcement of reservoir safety from local authorities in April 2016.

### **Q. What is the role of SEPA as the regulatory authority?**

**A.** SEPA, as the regulatory authority, is responsible for comprehensive regulation and enforcement of the 2011 Act. We are also required to maintain a Statutory Public Register of Reservoirs and to produce biennial reports to the Scottish Government.

For further information, please visit [www.sepa.org.uk/reservoirs](http://www.sepa.org.uk/reservoirs)

### **Q. Who is the reservoir manager?**

**A.** The operator(s), user(s) and/or owner(s) of the reservoir. This can be more than one person or company.

### **Q. Who has ultimate responsibility for the safety of reservoirs?**

**A.** Under the 2011 Act, reservoir managers (operators, users and owners) have ultimate responsibility for the safety of their reservoirs. They must operate within the law, and must consider the need for planning permission or environmental consents when introducing measures to be taken in the interests of safety.

### **Q. Who are panel engineers?**

**A.** Panel engineers are a group of specialist civil engineers (“qualified civil engineers”) who are experienced and qualified in reservoir safety. They are appointed by Scottish Ministers to one of the panels for a specific period, typically five years. Towards the end of this period, the civil engineer has to re-apply for appointment to the panel.

The 2011 Act requires them to oversee the safe construction, operation and maintenance of reservoirs and inspect their safety every ten years or more frequently if necessary. A panel engineer must be appointed by the reservoir manager when a new reservoir is built or repairs and changes are made to existing ones where these might affect the safety of the reservoir. Panel engineers (qualified civil engineers) may be construction engineers, inspecting engineers or supervising engineers.

The list of current panel engineers can be found at:

[www.gov.scot/Topics/Environment/Water/16922/panengineerlist](http://www.gov.scot/Topics/Environment/Water/16922/panengineerlist)

**Q. What is the role of a construction engineer?**

**A.** A construction engineer is appointed by the reservoir manager to supervise the design and construction of a new reservoir, the modification of a reservoir, for example if it changes its capacity or for other work which might affect its safety and for which Scottish Ministers have issued regulations.

**Q. What is the role of the inspecting engineer?**

**A.** The inspecting engineer's role is to inspect the reservoir when appointed to do so by the reservoir manager, to advise the reservoir manager of the condition of the reservoir and to make recommendations regarding works required to ensure its continued satisfactory operation, to give directions regarding monitoring required in the period up to the next inspection, and to provide advice on matters to be watched by the supervising engineer.

**Q. What is the reservoir manager's role in the inspection process?**

**A.** The reservoir manager should normally attend the inspection and provide the inspecting engineer with the necessary documents to help them carry out the inspection. It is recommended that the reservoir manager check the report to make sure it is accurate before it is finalised and issued. They also have an opportunity to check any queries with the inspecting engineer, such as what measures to be taken in the interests of safety he/she may need to introduce.

**Q. What is the role of the supervising engineer?**

**A.** A supervising engineer is appointed by the reservoir manager and is required to notify the reservoir manager about any safety issues related to the reservoir. They are also required to monitor any matters specified in safety reports, preliminary and final certificates as well as inspection reports. They are also required to report to the reservoir manager and SEPA any failures to comply with the previously mentioned reports and certificates. The supervising engineer must produce a written statement at least every 12 months which must be supplied to the reservoir manager and SEPA.

**Q. What other organisations are responsible for the enforcement of safety issues that are not covered by the Reservoirs (Scotland) Act 2011?**

**A.** We recognise the role of other organisations and will not take on responsibilities that rightly sit with others or duplicate effort unnecessarily. In particular the Health and Safety Executive has a key role under the Health and Safety at Work Act 1974 and local authorities have key roles in addressing site safety under the Building Act 1984 (section 76 to 79). We will provide information to these bodies on risks that we find that are their responsibility.

## 5.3 Sources of information

### 6.3.1 SEPA

[www.sepa.org.uk](http://www.sepa.org.uk)

As the enforcement authority for reservoir safety in Scotland SEPA's website hosts comprehensive information on reservoir safety. We also have a national, strategic role for flood risk management and are the flood warning authority for Scotland.

### 6.3.2 Scottish Government

[www.scotland.gov.uk/Topics/Environment/Water](http://www.scotland.gov.uk/Topics/Environment/Water)

The Scottish Government drafted the Reservoirs (Scotland) Act 2011 in consultation with the reservoir industry. A list of panel engineers is available from the Scottish Government website, along with information on development of the new legislation.

### 6.3.3 Institution of Civil Engineers

[www.ice.org.uk](http://www.ice.org.uk)

The Institution of Civil Engineers (ICE) seeks to advance the knowledge, practice and business of civil engineering, to promote the breadth and value of the civil engineer's global contribution to sustainable, economic growth, and ethical standards, and to include in membership all those involved in the profession. The ICE, through its Reservoirs Committee, advises government ministers on the appointment of Panel Engineers.

### 6.3.4 British Dam Society

[www.britishdams.org](http://www.britishdams.org)

The British Dam Society (BDS) is an Associated Society of the Institution of Civil Engineers. It exists to advance the education of the public and the profession in technical subjects relating to the planning, design, construction, maintenance, operation, safety, environmental and social issues of dams and reservoirs. The BDS is also a member of the International Commission on Large Dams (ICOLD).

### 6.3.5 International Commission on Large Dams

[www.icold-cigb.org](http://www.icold-cigb.org)

International Commission on Large Dams (ICOLD) comprises 82 countries and seeks to develop dams in a technically safe, ecologically and socio-economically sustainable manner.



## 5.4 Glossary

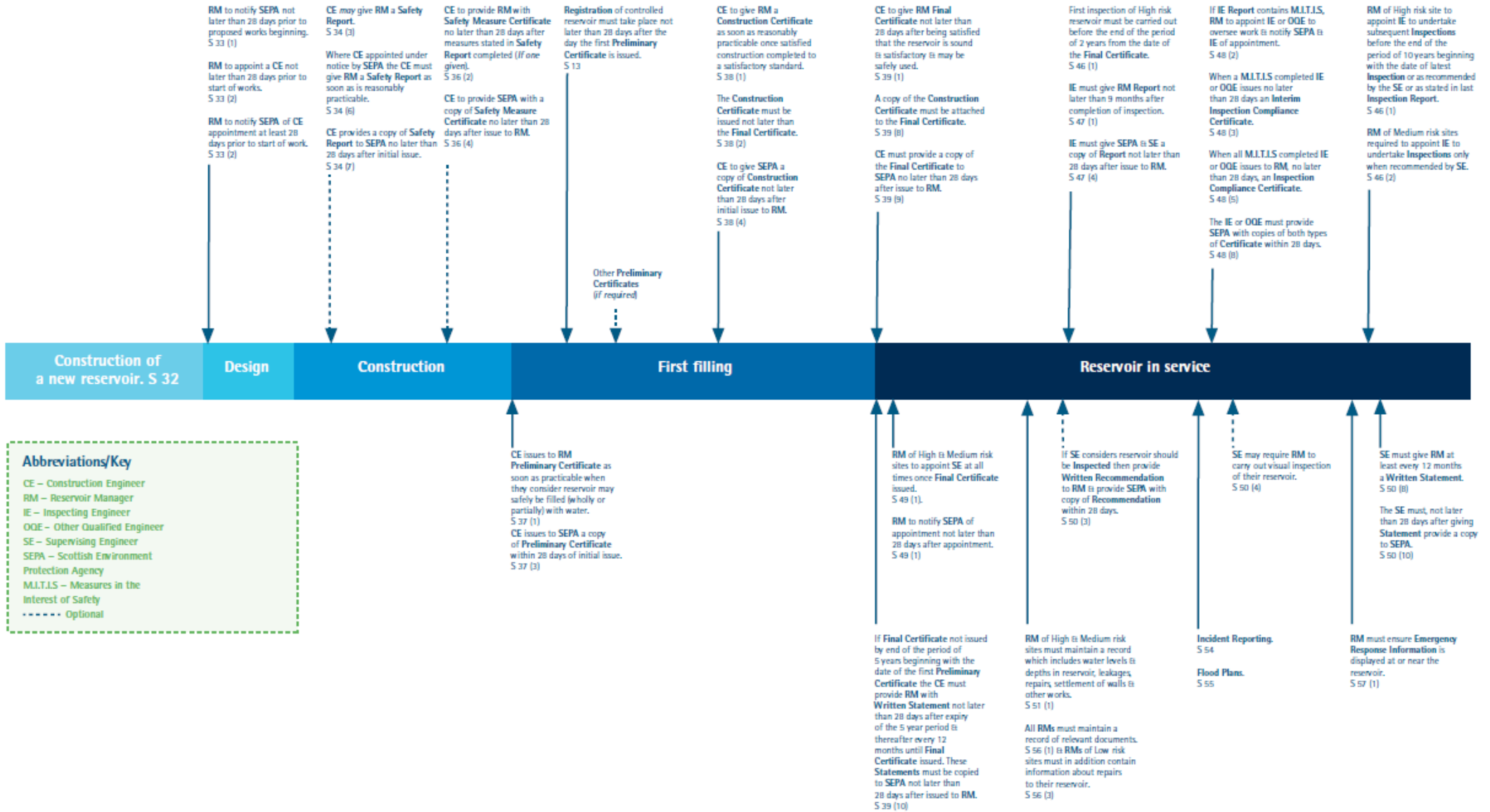
Term	Definition
Civil sanctions	An enforcement intervention that can be applied directly by the regulator.
Controlled reservoir	After the Reservoirs (Scotland Act) 2011 is fully implemented, a controlled reservoir will be a structure designed or used for collecting water which is capable of holding 10,000 cubic meters of water or more above the natural level of any part of the surrounding land.
Dam	A dam is a man made barrier usually built across a river to hold back water forming a loch or reservoir behind it. It can be constructed from concrete or natural materials like earth and rock.
First risk designation	The risk designation ('high', 'medium' or 'low') is assigned to a reservoir once the period for representations has ended.
Impoundment	Any dam, weir, or other works by which water may be impounded (i.e. collected and stored); or any works diverting waters in connection with the construction or alteration of any dam, weir or other works. Raising the level of an existing natural loch is also considered an impoundment. A pond or loch created by excavation below the pre-existing ground level (e.g. flooded quarry) is not included.
Incident reporting	Reservoir managers are required to report to SEPA incidents that have occurred at their reservoir.
Inspecting engineer	Appointed by the reservoir manager of a high risk or medium risk reservoir to carry out an inspection.
Inundation map	A map showing areas that would be affected by flooding from releases from a dam's reservoir. The flooding may be from either controlled or uncontrolled releases or as a result of a dam failure. A series of maps for a dam could show the incremental areas flooded by larger flood releases.
Nominating reservoir manager	A reservoir manager who has nominated another manager to act on their behalf for decisions relating to the safety of the reservoir.
Nominee	Nominated to act on behalf of multiple reservoir managers and may act as a central point of contact in correspondence with SEPA. All individual reservoir managers are still legally responsible for complying with regulation.
Panel engineer	A specialist civil engineer appointed by Scottish Ministers. All reservoirs must be designed, constructed, inspected and supervised by a panel engineer.
Provisional risk designation	SEPA is required to give a provisional risk designation to all registered controlled reservoirs as soon as practical once registered. Reservoir managers are able to make a representation to SEPA within two

	months, if they are dissatisfied with the risk assigned to their reservoir.
Register	The reservoir manager of each controlled reservoir must register the reservoir with SEPA. SEPA must establish and maintain a controlled reservoirs register which contains specific information on each reservoir. SEPA must make the controlled reservoir register available to the public at all reasonable times.
Representation	If a reservoir manager is dissatisfied with the risk designation assigned to their reservoir following SEPA's provisional risk designation, they can make a representation to SEPA explaining why they feel that the risk designation is wrong.
Reservoir	Reservoirs are artificial storage places for water, such as ponds, impoundments and raised lochs, from which the water may be withdrawn (abstracted) for purposes such as electricity generation, irrigation, water supply or flood storage. They can also be recreational or amenity sites from which no water is normally abstracted.
Reservoir manager	This is the new term under the Reservoirs (Scotland) Act 2011 for the manager or operator of a reservoir. Reservoir Managers have ultimate responsibility for the safety of their reservoirs and will have control over the operation of the dam. The definition has been updated so as to ensure organisations who merely lease or use the water, such as angling clubs, may not be responsible for supervisory and maintenance requirements. However if under the terms of the lease they are required, for example, to operate valves then they may be classed as reservoir managers.
Review	A reservoir manager may seek to have their reservoir's risk designation reviewed if following a representation they are still dissatisfied with the risk designation given to their reservoir. SEPA is also required to undertake a review of a reservoir's risk designation when it considers it to be no longer appropriate or by the end of the period of six years.
Risk designation	The Reservoirs (Scotland) Act 2011 requires SEPA to assign a risk designation of either 'high', 'medium', or 'low' to all controlled reservoirs. The risk designation will be based on the potential impacts on a variety of receptors from an uncontrolled release of water. 'high' risk sites will receive a greater level of regulation than either 'medium' or 'low'.
Supervising engineer	Appointed by the reservoir manager of high and medium risk reservoirs to monitor matters as required in various engineers' certificates and reports.
Undertaker	In terms of the Reservoirs Act 1975, the "undertaker" is the person or organisation with responsibility for a reservoir. The "Reservoir Manager" will replace the "undertaker" and be responsible for registering each controlled reservoir under the Reservoirs (Scotland) Act 2011.

# 6 Appendix

## 6.1 Process for the development of a new reservoir

# New reservoir



An online copy of this diagram is available on [www.sepa.org.uk/reservoirs](http://www.sepa.org.uk/reservoirs)