The Reservoirs (Scotland) Bill seeks to create a legal and administrative framework for the construction and management of controlled reservoirs in a manner that reduces the risk of an uncontrolled release of water from reservoirs and the consequences of any subsequent flooding.
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EXECUTIVE SUMMARY

- Part 1 of the Bill seeks to create a framework for the construction and management of reservoirs to reduce the risk of an uncontrolled release of water and the consequences of subsequent flooding. Part 2 of the Bill provides for the creation of offences to support the Water Environment and Water Services (Scotland) Act 2003. These are not connected to Part 1.

- 80% of reservoirs in Scotland are created by embankment dams; most reservoirs are over 100 years old.

- Scottish Water, Scottish and Southern Electricity, private landowners, angling clubs, distillers and local authorities will all be affected by this legislation.

- At present, reservoirs holding 25,000m$^3$ of water or more are controlled by the Reservoirs Act 1975. Under the proposed regime, this will reduce to reservoirs holding 10,000m$^3$ or more.

- Individual reservoir managers are deemed to be responsible for complying with most of the Bill’s requirements, with SEPA as the enforcement authority, as opposed to individual local authorities under the current regime.

- SEPA is required to take the probability of an uncontrolled release of water, and the potential consequences into account, then give relevant reservoirs a provisional risk designation (high, medium or low) as soon as is reasonably practicable following their registration by reservoir managers.

- Thereafter, structures deemed to pose a high risk will have a greater level of regulation than those deemed medium or low.

- A panel of engineers, established in consultation with the Institute of Civil Engineers, will be established to regulate the construction, alteration, supervision or inspection of relevant structures. Reservoir managers must also comply with a series of requirements, including incident reporting.

- Scottish Ministers are enabled to make provision in regulations for the preparation of flood plans which set out the action to be taken by the reservoir manager in order to control or mitigate the effects of flooding likely to result from any escape of water.

- SEPA are enabled to enforce a series of civil sanctions, if it considers, beyond reasonable doubt, that an offence has been committed by a reservoir manager under Part 1 of the Bill.

- The Scottish Government’s Analysis of Consultation Responses shows that stakeholders are broadly supportive of the legislative proposals.

- Part 2 of the Bill has been consulted on, however responses to this have not been published.
INTRODUCTION

The Reservoirs (Scotland) Bill (the Bill) was introduced in the Scottish Parliament on 6 October 2010. The Rural Affairs and Environment Committee has been designated lead committee for consideration of the Bill at Stage 1. The Bill seeks to create a legal and administrative framework for the construction and management of controlled reservoirs\(^1\) to reduce the risk of an uncontrolled release of water and the consequences of any subsequent flooding.

The Bill also provides for the creation of offences to support the Water Environment and Water Services (Scotland) Act 2003 (asp 3). These provisions are not connected to those relating to reservoir safety.

This briefing outlines relevant current responsibilities and legislation and recent government work. It discusses the provisions of the Bill, as well as consultation responses, and other related issues.

CURRENT LEGISLATION AND REGULATIONS

The Reservoirs Act 1975 (c.23) (the 1975 Act) sets safety requirements to prevent escapes of water from Large Raised Reservoirs (LRR). These are defined as holding more than 25,000m\(^3\) of water above the natural level of the surrounding land. It imposes duties on “undertakers” who own, operate or use LRR. The Act regulates maintenance, inspection and structural changes to these. At present, local authorities have responsibility for enforcement of the provisions of this Act.

The Flood Risk Management (Scotland) Act 2009 (asp 6) (the 2009 Act) amends the 1975 Act in Part 7 by inserting provisions (not yet commenced) which:

- transfer enforcement responsibility for compliance with the 1975 Act from individual local authorities to the Scottish Environment Protection Agency (SEPA)
- require the production of flood plans by the reservoir manager or other person
- introduce compulsory post incident reporting
- extend the enforcement authority powers
- apply the Reservoirs Act 1975 to the Crown

The Water Environment and Water Services (Scotland) Act 2003 (asp 3) (the 2003 Act) transposes the EC Water Framework Directive (2000/60/EC) (WFD) into Scots law. The WFD established a framework to improve Europe’s water environment by implementing River Basin Management Plans (RBMP) to identify measures to manage impacts on the water quality of rivers, lochs, groundwater, transitional waters and wetlands. The RBMP process has identified that around 40% of Scotland’s water bodies do not meet the WFD’s “good status” objective. The 2003 Act empowered Scottish Ministers to make regulations in connection with the remediation or restoration of the water environment. However, it did not provide for the creation of offences in respect of such regulations.

The Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR) have been made under the 2003 Act. These require authorisation for activities such as abstractions

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\(^1\) As defined on p9.
from surface and groundwater; engineering activities in, or in the vicinity of rivers, lochs and wetland which are likely to have a significant adverse impact upon the water environment; any other activity which directly or indirectly is liable to cause a significant adverse impact upon the water environment.

The Buildings (Scotland) Act 2003 (asp 8) sets out the framework for a building standards system in Scotland. This applies to the construction of dams.

The Civil Contingencies Act 2004 (c. 36) creates a single UK framework for civil protection. It focuses on establishing statutory roles and responsibilities for local responders; and on emergency powers and special legislative measures that might be needed to deal with most serious emergencies.

CURRENT SITUATION, ROLES AND RESPONSIBILITIES

Reservoirs are artificial structures created to reserve water above its natural level for a number of purposes including drinking water, hydro power, agriculture, flood management and recreation. At present, there are more than 1000 reservoirs in Scotland, many of which are key components of the water supply regime. Of these, over 650 have a volume of more than 25,000m$^3$, and come under the 1975 Act. About 80% of these dams are embankment dams$^2$, with the remainder being concrete dams and service reservoirs$^3$. Most are over 100 years old (Policy Memorandum).

Figure 1: Example of a concrete dam; Blackwater, Kinlochleven (Photo: R Maclean)

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$^2$ Embankment dams are made mainly from natural materials. The two main types are earthfill and rockfill. Earthfill dams are made up mostly from compacted earth, while rockfill dams are made up mainly from dumped and compacted rockfill. The materials are usually excavated or quarried from nearby sites, or from within the reservoir basin (British Dam Society 2010).

$^3$ A service reservoir is a water storage container that holds clean water after it has been treated in a water plant, and before it is piped to the end users. These containers are covered, and are designed to keep the water safe from contamination. Their main purpose is to provide a buffer within the water supply system so that water supplies can be maintained across periods of varying demand (Open University 2010).
Scottish Water is the largest reservoir owner in Scotland. At present it has 248 structures regulated under the 1975 Act. Under the provisions of the Bill, this will exceed 300. Scottish and Southern Energy is Scotland’s largest supplier of electricity from hydro-power, and has 80 structures regulated under the 1975 Act. Under the provisions of the Bill, this will exceed 90. Other stakeholders who will be affected by the provisions of the Bill include private landowners, angling clubs, distilleries and local authorities. A list of local authorities and the number of reservoirs in their area is included at Annex A. Briefly, in the top three, Highland has 127 reservoirs, Argyll and Bute has 76, and Perth and Kinross has 55.

Before 1930, there were a number of dam failures in the UK which resulted in loss of life; including Skelmorlie in North Ayrshire which saw the failure of a 24,000m$^3$ reservoir killing five people in 1925. Since 1930, there have been no dam failures in the UK involving loss of life, although some small dams have failed. The most common causes of failure of embankment dams are overtopping (overflow) or internal erosion (Scottish Government 2010a). However, the Scottish Government (2010a) have said that:

“…a number of incidents have occurred which have given cause for concern about the robustness of the current system. An incident which occurred at the Maich fishery in Renfrewshire in 2008 required emergency response procedures to be activated and an area downstream to be evacuated. This reservoir did not come under the ambit of the 1975 Act.”

Current legislation (the 1975 Act) only applies to LRR holding, or capable of holding, more than 25,000m$^3$ of water above the natural level of the surrounding land. This, however does not take into account the level of risk posed by the reservoir, nor does it allow for:

“…smaller reservoirs to be supervised through their construction or operational phases, even though the failure of smaller reservoirs could have serious consequences if there are people living downstream.” (Policy Memorandum)

Key players in the current regime of reservoir safety and their relationship to each other are set out below:

- **Reservoir Undertakers/Managers** (usually the owners) have ultimate responsibility for the safety of their reservoirs and associated structures (e.g. spillways and embankments). They must appoint a Panel Engineer who supervises and carries out periodic inspections to ensure structural integrity. A Panel Engineer must also be appointed to design and construct a new reservoir or repair/change an existing reservoir.

- **The Reservoir Panel** is set up by the UK Secretary of State for Environment in consultation with the Institute of Civil Engineers (ICE). The institute oversees its members who undertake the inspections, and recommends whether a member should be a panel engineer (N.B. Not all engineers are the same. It requires a higher level of expertise to be an inspecting/construction engineer. Most inspecting engineers are also supervising engineers).

- **Local Authorities** have responsibility for enforcement of the 1975 Act. This includes maintaining registers of information about LRR (over 25,000m$^3$), powers and duties to require undertakers to comply with the Act, as well as reporting to Scottish Ministers. Failure to comply is a criminal offence and triggers a power for the authority to carry out the work itself and recover the costs from the undertaking.

- **SEPA** has been given the power of enforcement authority under the 2009 Act, removing responsibility for regulating LRR from local authorities. However the relevant provisions of the Act have not yet commenced. Under CAR, SEPA is the licensing authority, and
regulates any activities which are likely to have a significant adverse impact upon the water environment.

- **Scottish Ministers** have responsibility for ensuring the 1975 Act is enforced by local authorities. Reservoir safety is a devolved matter for the Scottish Government, however the operation of the “panel” system, is currently administered on a UK basis by Defra. Under the 2009 Act, Ministers can also make incident reporting regulations and require reservoir undertakers to prepare flood plans, or to repair/change an existing reservoir.

- **Strategic coordinating groups** are led by the Chief Constable and local authority chief executives across eight Scottish areas. These groups lead responses to flooding events, and are responsible for developing detailed plans for all types of incidents. These are exercised regularly and all groups have experience of dealing with different types of emergencies. A number of organisations contribute to delivery of the plans, including local authorities, emergency services and SEPA.

### RELEVANT SCOTTISH GOVERNMENT CONSULTATIONS

**Reservoir safety**

In February 2008, the Scottish Government launched a consultation on “The Future of Flood Risk Management in Scotland”. This sought responses on subjects relating to planning and preparing for flooding, as well as key Bill provisions (Scottish Government 2008). It requested information on a number of matters, including proposals to transfer responsibility for enforcement of the 1975 Act from local authorities to a single enforcement authority, SEPA.

The Flood Risk Management (Scotland) Bill was passed by Parliament on May 13, 2009 and received Royal Assent on June 16, 2009. As previously noted, the 2009 Act contained a provision (in Part 7) to create a single enforcement authority for reservoirs. Two commencement orders have come into force for the majority of the 2009 Act; Part 7 (Reservoirs) is expected to be commenced in 2011.

In January 2010, “Reservoir Safety in Scotland: A Consultation Document” was launched. This sought views on a number of subjects, including the implementation of Part 7 of the 2009 Act as well as proposed Regulations under sections 88 and 89 which provide for incident reporting at reservoirs to the enforcement authority, and the preparation of reservoir flood plans (Scottish Government 2010a).

The consultation further proposed to introduce a more risk-based approach to reservoir safety by:

- placing a requirement for all reservoirs above a minimum volume capacity (10,000m³) to be included on a SEPA register
- requiring SEPA to classify each reservoir according to whether it poses a threat to human life, property and critical infrastructure
- requiring reservoir undertakers to comply with the new regime which will vary depending on risk
- imposing new duties on reservoir undertakers
- amending the role of Panel Engineers
A report (Scottish Government 2010b) containing analysis of the 67 consultation responses as well as the discussions from four workshops held in Inverness, Edinburgh, Glasgow and New Galloway states that:

“…responses generally supported proposals for reservoir flood plans, incident reporting and a risk-based approach to reservoir safety. There were some concerns about some of the detail […]. Generally, however the safety benefits of the proposed changes were accepted to be worthwhile and of value to public safety, and the vast majority of respondents supported the Scottish Government’s preferred implementation model.

These concerns are discussed in more detail below.

Creation of offences under WEWS

The Scottish Government consulted on Scotland’s Waters: Future Directions (2009a) and Restoration of the Water Environment (2009b) alongside draft RBMPs. These documents highlighted a gap in the delivery framework of WEWS, and proposed a strategic approach to river basin restoration, underpinned by proposals for new regulatory powers. In particular, the Scottish Government (2009b) proposes a “tiered set of regulatory powers” for SEPA; furthermore, it notes that “SEPA already has similar powers under a number of regulatory regimes, including CAR and in relation to Special Sites under the contaminated land regime”. There is no specific mention made of the creation of offences.
THE RESERVOIRS (SCOTLAND) BILL

This section details the provisions of the Bill, and considers these provisions in relation to responses to the Government consultation.

PART ONE

This part sets out a new regulatory regime for the safe construction and operation of reservoirs in Scotland, and makes provision in the following main areas:

- definition of controlled reservoirs, and their compulsory registration by managers
- classification of each reservoir according to risk
- regulation, supervision and inspection of controlled reservoirs by panels of engineers
- requirement for incident reporting, flood planning, and for SEPA to enforce the provisions of the Bill

Definition of controlled reservoirs, and their compulsory registration by managers

Under Chapter 1, the definition of a controlled reservoir is determined in sections 1 and 2 to include any of the following areas “capable of holding 10,000m$^3$ or more of water above the natural level of any part of the surrounding land”, including associated infrastructure e.g. spillways, valves and pipes:

- structures designed or used for collecting and storing water
- artificial or partly artificial lochs and other artificial areas
- individual structures where a combined capacity or flow amounts to 10,000m$^3$

With regard to combined capacity or flow, the Explanatory Notes state:

“Such combinations have the potential to cause a similar degree of risk to public safety as larger individual reservoirs, notwithstanding that the individual structures that comprise the combination might only hold a relatively small volume of water.”

Section 1(4) enables Scottish Ministers to treat particular reservoirs as controlled, even if they fall outwith the 10,000m$^3$ definition, where there are particular concerns about the risk posed by that structure. Specific exclusion from regulation is also applied, in section 2(2), to structures such as canals and weirs, which are covered by existing legislation.

Individual reservoir managers are deemed to be responsible for complying with most of the Bill’s requirements, and section 3 sets out who these are. Depending on different factors, this might be Scottish Water, the business (or businesses) who use the reservoir, the lessee, or the owner(s). Section 3(9) provides that people with limited rights to use the reservoir for the catching of fish, who have no responsibility for the management or operation of the reservoir, cannot be reservoir managers, unless they are also lessees or owners. There is potential for duplication where multiple businesses use a reservoir, therefore section 4 provides for one to be nominated to reduce the administrative burden, and to avoid confusion over responsibility.
Further sections place a duty on reservoir managers to cooperate (s5), enable Scottish Ministers to direct SEPA to publish guidance on controlled reservoirs (s6), and repeal the 1975 Act (s8).

Chapter 2, section 9 requires SEPA to establish and maintain a register of controlled reservoirs to include name, location, maximum capacity, contact details for reservoir manager, copies of any relevant documentation, and an outline inundation map showing the area of land which, in the event of an uncontrolled release of water, would be likely to flood. SEPA would prepare these initially to enable them to carry out the risk assessment under sections 17 to 22; copies of these will be provided to the reservoir managers and they will inform the flood plans they will be required to prepare under Chapter 7.

Under section 16, it will become an offence for a reservoir manager to fail to comply with specified registration requirements, allowing for a maximum penalty not exceeding level 5 on the standard scale.£5000.

Further sections in Chapter 2 require reservoir managers to register with SEPA (s10), and if Scottish Ministers make provision by regulation under section 14(4), for:

- SEPA to charge for registration
- SEPA to publish guidance on registration in consultation with ICE

Consultation Responses

The Scottish Government’s Analysis of Consultation Responses (2010b) showed that the most contentious issue of the proposed legislation is the 10,000m³ minimum capacity threshold. Around half of the respondents disagreed with the proposed figure, for various reasons. Many of these felt that there was insufficient detail as to the figure’s origins, and it therefore appeared too low. However, responses from local authorities generally accept the proposed figure as reasonable and appropriate. A rationale for the 10,000m³ threshold has subsequently been published (Scottish Government 2010b) which shows that the “figure was determined following advice from the sector, specifically ICE”.

The administrative and financial burden imposed by the Bill is a major concern for many of the consultation respondents. It is widely felt that the registration process should have minimal cost implications or that the costs should be covered by SEPA, who should also strongly support registration work to lower the burden on managers. Many respondents felt that there should be no charge imposed whatsoever, or that there should be an initial period of free registration. Some believed that charging should be proportionate to risk/consequence.

Classification of each reservoir according to risk

Chapter 3, sections 17, 18 and 21 require SEPA to give relevant reservoirs a provisional risk designation (high, medium or low) as soon as is reasonably practicable after their registration, taking into account the probability of an uncontrolled release of water, and the potential adverse consequences on a number of factors, e.g. human health, the environment, and critical infrastructure. Reservoir managers then have two months to make representations to SEPA regarding the initial designation. Thereafter, having taken account of any representations from
the reservoir manager, SEPA must give a “first risk designation”, alongside the reasons for that designation; against which, reservoir managers have a right of appeal.

Section 19 requires SEPA to periodically review the risk designation, at least every six years, or sooner should they believe that it is no longer appropriate. This is to allow SEPA to consider updated flood risk assessments, maps and plans under the 2009 Act and ensure the risk classification is based on the most up to date information. The same process of representation and right of appeal applies. Section 23 allows for SEPA to publish guidance on risk designations.

Consultation Responses

The classification and regulation of each reservoir according to risk is an updated version of the current UK wide system, and was supported by most respondents to the consultation (Scottish Government 2010b). The Scottish Government (2010b) states that:

“A shift to a combined risk and consequence approach is more sophisticated than a simple de minimus threshold, and many respondents identify that this reflects the need to consider the complex realities around reservoir undertaking. Generally, a risk-based approach is preferred…”

Furthermore, “an approach which considers both risk and consequence […] is supported by the vast majority of respondents”. There was no consensus amongst respondents about whether certain reservoirs should be made exempt from classification.

Therefore:

“Those sites deemed to pose a ‘High’ risk would have a greater level of regulation and control that those deemed to be ‘Medium’ or ‘Low’ risk. In this way it would ensure reservoirs are regulated appropriately in relation to the risk they pose to human safety. Risk classification would be re-assessed on a regular basis, possibly every six years, to tie in with the Flood Risk Management (Scotland) Act to ensure the most up-to-date information is used in assigning risk classification.” (Scottish Government 2010b)

Regulation, supervision and inspection of controlled reservoirs by panels of engineers

Chapter 4 makes provision for the establishment of one or more panels of reservoir engineers, in consultation with the Institute of Civil Engineers, and sets out the process for appointing or removing engineers from the panel.

Chapter 5 regulates the construction or alteration of controlled reservoirs by requiring the appointment of a panel appointed construction engineer to oversee, report on, and certify the works. These include restoration to use, discontinuance and abandonment. SEPA must be notified at least 28 days in advance of any works commencing.

Sections 32 to 42 of Chapter 5 make provision for a system of inspection and reporting by panel engineers. This allows for the issuing of safety reports, preliminary certificates, construction certificates and final certificates, depending on the work carried out. These are issued to both the reservoir manager and SEPA. Consequently, failure to comply with certain requirements of this chapter constitutes an offence. For example, a reservoir manager who does not notify SEPA of relevant works or the appointment of a construction engineer might incur a maximum
penalty not exceeding level 5 on the standard scale\textsuperscript{5} for a high-risk reservoir. Non-compliance with a safety report or other relevant certificate might incur imprisonment for up to three months if tried in the sheriff court. Acceptable defences are also set out as; if the person can show that failure to comply was as a result of an unforeseen accident, natural cause or force majeure, and that all practicable steps were taken to:

- prevent an uncontrolled release of water
- rectify the failure
- provide particulars of the failure to SEPA as soon as practicable

Chapter 6, section 43 requires managers of high or medium risk reservoirs to appoint an inspecting engineer from the panel created under section 25, and to give notice of this appointment to SEPA within 28 days.

Thereafter, sections 44 to 46 allow for a regime of inspection of high risk reservoirs to be carried out within two years of a final certificate being issued; at any time recommended by the supervising engineer; and within 10 years of the last inspection. Inspections of medium risk reservoirs should be carried out as recommended by the supervising engineer.

Panel engineers, having carried out the inspection should supply reservoir managers with an inspection report, and compliance certificates. Likewise, reservoir managers should supply engineers with their final certificates, and most recent inspection reports (if they exist). Inspection reports are to include any measures the inspecting engineer considers should be taken:

- in the interest of safety
- to maintain the reservoir

The report should also specify whether any of the measures from the previous report are not included in the current report and why. Thereafter, the report should direct the manager to carry out the specified measures within a certain period of time, detail the timing of the next inspection and any matters that should be monitored by the supervising engineer until that occurs. Reservoir managers are obliged to comply with these directions, and inspecting engineers are required, having been satisfied that the directed measures are complete, to issue an interim inspection compliance certificate to both reservoir manager and SEPA. The Policy Memorandum states:

“In the case of Low-risk sites, the absence of consequences for any people or property negates the need for any supervisory requirements at all. This is very relevant in Scotland as many reservoirs are geographically remote. In these cases, the onus will appropriately be on each reservoir manager to properly maintain their own assets. This in turn will allow for a more considered allocation of limited engineering resources.”

Sections 47 to 51 allow for a supervising engineer, appointed from the panel established under section 25, to be in place at high and medium risk reservoirs at all times, unless it is under the supervision of a construction engineer. This supervising engineer is required to:

- notify the reservoir manager of any matters which could affect the safety of the reservoir
- monitor compliance with the final certificate

\textsuperscript{5} £5000
• supervise the implementation of directions in the latest report
• notify the reservoir manager and SEPA of any failure to comply with the final certificate
• monitor any matter specified in certificates or inspection reports
• supervise any proposed draw-down of the reservoir
• monitor the reservoir manager’s compliance with further provisions on recording water levels and record keeping

These provisions on recording water levels and record keeping require the reservoir manager of high and medium risk reservoirs to maintain a record of:

• water levels, depth of water, including flow of water over any waste weir or overflow
• leakages and or repairs
• settlements of walls or other works
• any other matters as specified by Scottish Ministers by regulation

Further provision (s49(3)) enables construction, inspecting or supervising engineers to direct the reservoir manager as to the manner in which the records are to be kept and how often they should be updated, as well as requiring the reservoir manager to install any instruments necessary to allow relevant information to be recorded.

Failure to comply with the provisions of Chapter 6, such as:

• appointment of supervising engineer, or of inspecting engineer and carrying out of required inspections
• notice of appointment to SEPA
• compliance with direction as to taking of measure in inspection report
• compliance with direction of supervising engineer as to carrying out of visual inspection of reservoir
• maintenance of record of water levels etc
• giving inspecting engineer copy of final certificate and latest inspection report

renders a manager of a high-risk reservoir liable on summary conviction to a fine not exceeding level 5\(^6\), and a manager of a medium-risk reservoir is liable on summary conviction to a fine not exceeding level 4\(^7\).

\(^6\) £5000
\(^7\) £2500
Acceptable defences are also set out in section 51 as; if the person can show that failure to comply was as a result of an unforeseen or natural cause, or force majeure, and that all practicable steps were taken to:

- prevent an uncontrolled release of water
- rectify the failure
- provide particulars of the failure to SEPA as soon as practicable

Consultation Responses

The Scottish Government’s Analysis of Consultation Responses (2010b) shows that the vast majority of consultees agreed with a model for reservoir safety where panel engineers have a key role in ensuring public safety by undertaking inspections, completing reports and signing off certificates. Furthermore:

“Most respondents feel that overall responsibility for reservoir safety should remain with reservoir undertakers, though with this responsibility undertakers will require the expertise of appropriate professional support”

However, because at present panel engineers operate across Great Britain under the Secretary of State for Environment, there was some confusion “about restrictions that this might place upon engineers operating across boundaries; it is not clear to many respondents how the proposals might affect engineers’ ability to work across borders within England and Wales. Should restrictions apply, this might raise costs associated with a smaller labour pool. In essence, most respondents agree that the proposals are logical should they simplify existing processes and not create additional, unnecessary work for engineers” (Scottish Government 2010b).

Most respondents generally supported reporting requirements, as well as the setting of certain parameters for engineering reports. However, the detail of these reports, in particular the setting of dates, was felt to be inappropriate, and respondents felt that any dates stated would require a degree of flexibility to take into account situations where an undertaker has work ongoing (Scottish Government 2010b).

Requirement for incident reporting and flood planning, and provisions for dispute referral

Chapter 7, section 52 enables Scottish Ministers to consult on, and make provision in regulations for reporting incidents which may affect the safety of controlled reservoirs. These regulations may:

- define what constitutes an incident by reference to circumstances which adversely affect the safety of a controlled reservoir
- require the reservoir manager of a controlled reservoir or other specified person to report incidents occurring at the reservoir
- provide for an inspecting engineer, a supervising engineer or other person to determine whether an incident has occurred
• require reservoir managers of controlled reservoirs, supervising engineers, inspecting engineers and any other person of a specified description to have regard to guidance issued by SEPA or the Scottish Ministers

• make provision for the publishing of incident reports

• confer powers of entry on SEPA in connection with its functions under the regulations

• create summarily triable offences, and set out fine limits for these

• make provision in connection with ensuring remedial action is taken following an incident report including provision amending the proposed legislation

Section 53 enables Scottish Ministers to consult on, and make provision in regulations for the preparation of flood plans, as follows:

“A “flood plan” for a controlled reservoir is a plan setting out the action to be taken by the reservoir manager of the reservoir to which the plan relates in order to control or mitigate the effects of flooding likely to result from any escape of water from the reservoir.”

Regulations may include provision:

• regarding who is to prepare a flood plan

• requiring the preparation of flood plans for all controlled reservoirs, or controlled reservoirs of such categories as may be determined by Scottish Ministers or SEPA

• specifying the form in which a flood plan is to be prepared, and what is to be included

• requiring the person preparing a flood plan to have regard to any guidance that may be issued by SEPA or the Scottish Ministers as regards flood plans

• requiring flood plans to be produced or submitted to SEPA by such time as either the regulations specify, or the Scottish Ministers or SEPA may direct

• regarding the approval of flood plans (whether by the Scottish Ministers, SEPA, inspecting engineers or supervising engineers)

• regarding the review and updating of flood plans

• regarding the publication or distribution of copies of a list of reservoirs in relation to which a flood plan must be prepared by virtue of the regulations, as well as those flood plans

• in connection with the testing of flood plans

• in connection with the referral of matters to a referee

• requiring the reservoir manager, so far as it is practicable to do so, to take action in the event of an emergency

• providing that SEPA may, in circumstances specified in the regulations, do anything that another person is required to do under the regulations and may recover the expenses of doing so from the person

• conferring powers of entry on SEPA in connection with its functions under the regulations
• creating summarily triable offences, and setting out fine limits for these

Further sections in Chapter 7 require reservoir managers to:

• maintain a record of relevant documents, including safety reports, construction or final certificates; inspection reports, inspection compliance certificates; and relevant drawings and descriptions of works annexed to construction certificates (s54)

• display emergency response information, by order of Scottish Ministers under the direction of SEPA, to include name of reservoir, registration number in the controlled reservoir register, reservoir manager’s name, address, and contact information for the engineer (s55)

Failure to comply with the provisions on maintenance of records, and displaying of emergency response information leave a manager of a high-risk reservoir liable on summary conviction to a fine not exceeding level 5\(^8\), and a manager of a medium-risk reservoir liable on summary conviction to a fine not exceeding level 4\(^9\).

Chapter 8 provides for arbitrating disputes between reservoir managers and construction or inspecting engineers in relation to directions in safety or inspection reports, and preliminary or final certificates. These disputes must be refereed by a relevant panel engineer, and might relate to:

• the specified water level which the reservoir must not exceed

• any requirements the engineer considers appropriate as to the manner in which the water level may be increased or decreased

• an early inspection timetable relating to high risk reservoirs

• any other matter the engineer considers should be monitored

Section 60 enables the referee to modify the directions of relevant reports, make the necessary modifications to associated certificates, and then require the reservoir manager and SEPA to be issued with these within 28 days of making the decision. Scottish Ministers are further enabled to make provision in regulations as to the time, manner and procedure of referrals under this Chapter (s62).

Consultation Responses

The Scottish Government’s Analysis of Consultation Responses (2010\(^b\)) indicates that proposals for incident reporting criteria, report content and incident reporting responsibility are largely uncontroversial, with the majority of respondents in support of the proposals. Some minor changes to incident reporting criteria were suggested; however these did not constitute significant alterations to the proposals.

“A number of respondents highlight a need for incident reporting and flood plans to be linked through consideration of necessary changes to the flood plan following incidents, should systems be modified or physical reservoir works take place. Most respondents feel that overall responsibility for reservoir safety should remain with reservoir undertakers, though with this responsibility undertakers will require the expertise of appropriate professional support.” (Scottish Government 2010\(^b\))

\(^8\) £5000
\(^9\) £2500
Regarding the preparation of flood plans, more than half of respondents agreed that, to prevent unnecessary work, high, medium and low risk reservoirs require different levels of flood planning. However, around a quarter felt that all flood plans should contain the same level of data; most agreed that a basic inundation map, prepared by SEPA to ensure comparability, should be included. A significant majority of respondents from all sectors believed that financial assistance should be provided by the Scottish Government to assist the preparation of flood plans to enable compliance with the Bill. It was generally accepted that inundation maps should be freely available to any interested parties, particularly because inundation maps may influence ongoing planning and development. However, many respondents felt that access to flood plans should be restricted to professional users due to possible security concerns should information be freely available (Scottish Government 2010b).

**New powers for SEPA to enforce Part One of the Bill**

Chapter 9 sections 63 to 96 create new civil enforcement powers that SEPA can use as an alternative to prosecution to enforce the requirements of the Bill, as well as emergency powers to take immediate action to protect people or property. The Policy Memorandum states that the “intention is that SEPA can deal with each case on a specific and individual basis, rather than following a prescribed legal path where sometimes it might be inappropriate to do so. Flexibility and common sense will be key aspects of how SEPA approach their enforcement duties, although legal sanctions will still be applied where it is viewed appropriate to do so.” These powers include:

- serving enforcement notices requiring the reservoir manager to appoint a construction, inspecting or supervising engineer within 28 days, and making it an offence not to comply (s63 and s64)

- enabling SEPA to appoint a relevant engineer where the reservoir manager has failed to do so, and to reclaim any expenses from the reservoir manager (s65)

- where SEPA has appointed an engineer, a requirement that any reports or certificates are to be first given to SEPA (s66)

- serving an enforcement notice where it appears that a reservoir manager has failed to comply with their duty to comply with a safety or inspection report. This notice must (following consultation with a specified engineer) specify, a timeframe for compliance, reasons for serving the enforcement notice, and any steps which SEPA consider must be taken, as well as making it an offence not to comply (s67 and s68)

- creating powers for SEPA to appoint a relevant engineer to oversee compliance with a measure previously specified in a report, and for the reservoir engineer to reimburse SEPA the amount of any expenses reasonably incurred (s69)

- where a reservoir manager is found guilty of failure to comply with a direction in a safety or inspection report; the court may, in addition to or instead of imposing a penalty, order the reservoir manager to undertake any mitigating or remedial work directed in the relevant report (s70)

- Scottish Ministers, by order, allowing SEPA to issue stop notices. These notices prohibit a reservoir manager from carrying on a specified activity until the manager has taken specified steps to remove or reduce the risk of an uncontrolled release of water. Further sections relate to stop notice procedural requirements, financial compensation and rights to appeal, and enforcement (s71, s72, s73 and s74)
• enabling SEPA to take emergency action, in consultation with a panel engineer, to prevent an uncontrolled release of water that would cause harm to people or property (s75)

• allowing SEPA to receive an enforcement undertaking; these allow reservoir managers who may have committed an offence under the Bill to agree to take action to rectify the situation in exchange for immunity from prosecution. Appropriate actions include securing that the offence does not continue or recur, restoring the reservoir, benefiting any person adversely affected (including payment of a sum of money) (s76)

• the imposition of fixed monetary penalties on reservoir managers in relation to offences under this part. Further sections relate to the process for issuing a fixed monetary penalty, and a reservoir manager’s immunity from further proceedings upon payment (s77, s78 and s79)

• the imposition of further enforcement measures in the event of non-compliance; including variable punitive monetary penalties, restraint notices which may require steps to be taken to avoid recurrence of an offence, and restoration notices which may require action to be taken to rectify the consequences of an offence. Further sections relate to charging a financial penalty in the case of non-compliance with a relevant notice, and a reservoir manager’s immunity from further proceedings upon payment (s80, s81, s82, and s83)

• requirements on SEPA to consult relevant bodies before invoking the above provisions, and to publish guidance about these powers (s84 and s85)

• recovery of expenses incurred by SEPA in issuing stop notices, or imposing further enforcement measures (s86)

• publication of information regarding enforcement action taken against a reservoir manager (s87)

• powers of entry for SEPA to inspect land or a structure for a number of purposes including, designating reservoir risk, determining whether a directed measure has been carried out, determining compliance with a relevant certificate, preparation of a flood plan, or other relevant measure. If necessary, where reasonable grounds have been established, warrants will be available from a sheriff or justice of the peace to gain entry using reasonable force. Impeding or obstructing entry of a person appointed by SEPA constitutes an offence (s88, s89, s90 and s91)

• a requirement on SEPA to pay compensation for disturbance to persons or damage to land (s92)

• a requirement on SEPA to report to Scottish Ministers about the steps it has taken to secure compliance with powers outlined in Part One of the Bill (s93)

• a requirement for reservoir managers to provide the relevant required records, and reasonable facilities to engineers to carry out their functions under Part One of the Bill (s94)

• further powers for SEPA to require reasonable information and assistance from the reservoir manager to exercise its powers and duties under Part One of the Bill (s95)

• failure to provide relevant required records, or reasonable information and assistance on the part of a reservoir manager constitutes an offence (s96)
Consultation Responses

The Scottish Government (2010b) notes that the “reservoir safety regulation and enforcement role would be new to SEPA and would therefore require new systems and a new administrative team to enforce the regime. Where appropriate, SEPA would look to incorporate these new systems and processes into current business operations to provide an effective and efficient service”. It is also noted that a consultee recognised the “need to reinforce enforcement powers to establish real consequences of non-action in terms of maintenance and safety”. However, the consultation (Scottish Government 2010a) did not cover in detail the expansion of SEPA’s enforcement powers.

Similarly, a number of respondents identified that the lack of detail provided through the consultation as to the potential scale of costs of enforcement was problematic, and that the situation regarding recovery of costs from a reservoir manager was “more complicated than is presented in the consultation document”. The consultation document states (Scottish Government 2010b):

“The costs to SEPA of compliance with legislation must be recovered in an appropriate manner; most respondents do not agree that these costs should be recovered through subsistence fees due to the financial pressure this would place on reservoir undertakers. Those respondents who are in support of subsistence charging either support a means-tested approach or charging on a sliding scale linked to cost, offence and reservoir risk categorisation. In situations where SEPA has to undertake emergency works in the interest of public safety, most respondents agree that SEPA should be able to recover these costs from the reservoir undertaker. A number of issues […] could complicate this procedure […], with some respondents identifying that affordability should not be a concern for [reservoir managers]; they ought to have appropriate public liability insurance.”
PART TWO

As previously noted, the Water Environment and Water Services (Scotland) Act 2003 empowered Scottish Ministers to make regulations in connection with the remediation or restoration of the water environment. However, it did not provide for the creation of offences in respect of such regulations. The Explanatory Notes state:

“In the absence of such provisions, SEPA would be unable to enforce the terms of the Regulations, which would affect the achievement of the water environment quality objectives of the Water Framework Directive (WFD)”

This Part contains one section, 103, and extends the powers conferred by section 22 of the 2003 Act. Section 22 does not include provision for criminal offences relating to restoration measures. This section is therefore thought to be “necessary as it is currently difficult to enforce regulations where there are no offences in place” (Policy Memorandum).

A new schedule 2A is inserted into the 2003 Act which creates offences, and deals with matters relating to these offences, including enabling a court to order a person who has committed an offence to take remedial action in addition to or instead of imposing any punishment. Offences are triable either summarily, or by indictment; and depending on the seriousness of the offence, may incur imprisonment for a term not exceeding 12 months or by a fine not exceeding the statutory maximum, or imprisonment for a term not exceeding 2 years or by an unlimited fine.

As previously noted, in January 2009 the Scottish Government consulted on Scotland’s Waters: Future Directions (2009a) and Restoration of the Water Environment (2009b) alongside draft RBMPs. These documents highlighted a gap in the delivery framework of WEWS, and proposed a strategic approach to river basin restoration, underpinned by proposals for new regulatory powers. However, neither the consultation responses, nor an analysis of these has been published. The Policy Memorandum states:

“Responses to the consultations strongly supported new powers for SEPA to take action. The inclusion of an enabling power to create relevant and proportionate offences will greatly aid the delivery of Ministers’ obligations in this area.”
KEY CONSULTEES VIEWS ON PART ONE OF THE BILL

Insurance Experts: The Association of British Insurers (Scottish Government 2010c) welcomes the move towards a risk-based regulatory regime, and believes that effective risk assessment and management should help reservoir owners secure better insurance terms. It does not however, support the move to a 10,000m³ capacity limit, and believes that the legislation should be applied to all existing reservoirs. It believes that the information about flood risk and flood defences should be publicly available free of charge, and that they should have access to this data to enable them to price fairly for different risk levels. Furthermore, “In terms of insurance, it is important that reservoir owners understand the extent of their liabilities for damage caused by reservoir flooding. Insurance is available to cover this liability”. Professor David Crichton (Scottish Government 2010d), an independent insurance and flood risk analyst, believes that risk assessment for the preparation of flood plans should be based on insurance industry techniques, that flood plans should be publicly available, and that compulsory public liability insurance would allow reservoir owners to meet all claims. Regarding the use of engineers to assess risk, he states “Particular attention should be paid to the landslip and peat slide risk. Panel engineers never look at this – it needs geologists and peat slide experts”.

Civil Engineers: The Institute of Civil Engineers (Scottish Government 2010e) considers that the level of detail in flood plans should be commensurate with the level of risk, and that a list of competent companies should be compiled to enable reservoir managers to carry out their work accurately. ICE believes that SEPA should prepare simple inundation maps for all reservoirs over 10,000m³ to ensure consistency of approach, and to allow potential risk categorisation. This should however be done in a phased manner to prioritise expenditure and get best value. Furthermore, “Panel engineers are recognised as an authority on dams, therefore their involvement in preparation of the plans, in particular for medium and high-risk reservoirs, is important”. Regarding these plans, they believe that on site flood plans should be available to those with responsibility for reservoir safety (e.g. SEPA, owners, operators, engineers etc), but that inundation maps should be freely available. Regarding reservoir classification, a risk matrix should be established which considers the consequence of an uncontrolled release of water and the likelihood of a dam failing. Atkins (Scottish Government 2010f) a global engineering and design consultancy, operating in Scotland believes that the criteria for determining whether a reservoir requires a flood plan should be determined by the consequences of a failure, and that SEPA should prepare basic inundation maps for all reservoirs over 10,000m³. These, however, should only be used for emergency planning, and not spatial planning as has happened elsewhere in the UK. One key concern is finding and registering appropriate reservoirs. They state, “it is going to be very difficult to track down the reservoirs and then find their owners”. SEPA will therefore have to actively look for structures.

Local Authorities: There is general agreement (Scottish Government 2010g) that the criteria for preparation of a flood plan should be directly linked to risk of flood and consequence to people, property, infrastructure and natural heritage; and that different levels of detail should be included in flood plans depending on the risk of an uncontrolled release of water. However, at the very least basic inundation maps should be prepared by SEPA for all relevant reservoirs. Panel engineers should play a role in the preparation of more detailed flood plans, and these should be available to those who have a role in emergency response to an uncontrolled release. Inundation maps should be widely available, particularly to local authority planners. Regarding incident reporting, there is a call for “extremely comprehensive clear guidance” to determine whether an incident should be reported, as well as what information should be included. Some concern is voiced over the 10,000m³ threshold, as it is considered to be arbitrary if the policy focus is to shift from a volume based approach to a risk based one.
**Royal Society for the Protection of Birds Scotland:** “are extremely concerned that the changes could have perverse outcomes for biodiversity. For example the threat of regulation could lead to the pre-emptive draining of water bodies with a high biodiversity conservation value as happened in the UK following the introduction of the 1975 Act”. For these reasons, they propose retaining 25,000m$^3$ as the regulatory benchmark. They further note that reservoir classification should be based on risk/consequence, and that different levels of flood planning should apply depending on this. Inundation mapping is not thought to be essential for low risk reservoirs, lest it divert SEPA from other key areas of work. They further propose that any costs incurred should be scaled against risk, and that costs (for registration etc), and any public assistance for payment of these should be prioritised towards reservoir managers who deliver land management for the public good, such as biodiversity, climate change adaptation and a sustainable water supply (Scottish Government 2010h).

**Scottish Environment Protection Agency:** “recognises the responsibility associated with being proposed as the regulatory authority and looks forward to addressing the challenges that this will bring. However, the success of the regulatory authority will depend on the powers and duties conferred on it”. They believe that all sites should produce on-site flood plans, but that these should reflect the risk categorisation of each site. Furthermore “If SEPA were to undertake the process of producing the basic inundation maps for all sites it would help to ensure maps are produced to an agreed standard, within timescales, containing all relevant data and were produced using compatible software to systems already used within SEPA. It would also ease the management of this element of work. The alternative of co-ordinating all Undertakers to produce and return maps would be challenging. The cost of producing inundation maps should be cheaper if undertaken as a bulk exercise rather than by individuals”. SEPA believe that responsibility for producing flood plans should lie with the reservoir manager, but that where a site is deemed high or medium risk, a panel engineer should satisfy themselves with them, and sign them off.

Regarding access to flood plans, this should be granted to the reservoir manager and appropriate staff/employees based at the reservoir, relevant engineers, the regulatory authority and the relevant Strategic Coordinating Group. “If the plans are to be made available for public inspection by SEPA, SEPA would, subject to security directions, have limited ability to restrict access after submission”. Access to inundation maps should be for individuals, organisations and authorities who could be called upon to respond in an emergency; including members of the public living within relevant inundation areas. Local Planning Authorities should also have access to avoid the identification of development land which might be at risk. “Clearly the presentation of information would need to be carefully managed but it should be an aim to better inform the public of any risk and thus raise awareness, particularly if an emergency action is required”.

SEPA agrees with the minimum volume figure of 10,000m$^3$, however further notes the importance of a mechanism whereby this can be altered in the future if it has been set incorrectly, and where it can require registration, subject to an appeal process, of reservoirs with a lower volume where they are identified to pose a significant risk. Regarding registration, it is believed that there should be an initial free period to encourage reservoir managers to come forward (subject to alternative Government funding); however that low risk sites should still be required to register. They would subsequently be subject to minimal regulatory obligations; however “The risk a site poses can alter over time so it is essential that all sites are contained on a register so they can be reviewed within appropriate timescales. This is particularly important when thinking about linking reservoir safety with land-use planning and development management”. SEPA supports the reclamation of costs for emergency works, where a reservoir manager is not able to pay. Alternatively, “the Government could consider […] the requirement of High risk sites to carry insurance to cover the costs of any emergency works […] (Scottish Government 2010i).
Scottish Natural Heritage: has restricted its comments to considering the implications that a change in legislation might have on the management of reservoirs with “significant natural heritage interest” (Scottish Government 2010i). Their response encourages the Scottish Government and SEPA to maintain a dialogue with them to ensure there is no impact on protected natural features. They further propose that SEPA considers environmental / natural heritage values when assessing the impact of potential dam failures.

Scottish Rural Property and Business Association (SRPBA): favours the retention of the current system with some changes. They believe that panel engineers should continue to play a key role in ensuring public safety in reservoirs of 25,000m3 or more, but that SEPA should become the responsible authority, rather than local authorities. It is thought to be inappropriate to expect all reservoir managers to prepare a flood plan when the probability of an uncontrolled release of water varies between reservoirs; these therefore should be tailored depending on risk classification. Regarding the affordability of the proposed new regime, they state “It will be more expensive for small private businesses and individuals to comply with the new legislation than large organisations and this must be acknowledged through the provision of funding”. Further concern is voiced over access to inundation maps, in particular “inundation maps should not be used by insurance companies to increase insurance payments for properties found to be in a high flood risk area due to the presence of a high risk reservoir” (Scottish Government 2010k).

Scotch Whisky Association: “believe care is required to ensure that the proposed changes do not place growing and successful industries, such as Scotch Whisky, at a competitive disadvantage when compared with our international competition”; however “many of our […] members’ impoundments are in rural locations and therefore there is a low risk of any major impact upon property or lives from a dam collapse”. They support the proposal for a reduction in volume to 10,000m3, as well as for risk/consequence to be taken into account before implementing a requirement to prepare a flood plan. Financial assistance should be provided by the Scottish Government for all reservoir managers. However, financial burden should only placed on the operators of high risk sites. Registration should be free to all (Scottish Government 2010l).

Scottish Water: suggests that reservoir safety requirements should be proportionate to the consequence and risk posed by reservoirs to people, property and critical infrastructure. They do not believe that fees should be charged for enforcement, as they would not want to see owners deferring remedial works due to additional costs. “This would have a negative effect on reservoir safety and would be counter to the aims of new legislation”. There may therefore be a case for providing financial assistance to reservoir managers.

They support all reservoirs having basic flood plans as a good practice measure to determine the on-site steps which should be taken in the event of an uncontrolled release of water. However, only flood plans for medium and high risk reservoirs should be regulated in order to ensure proportionate enforcement and costs.

Concern is voiced over reservoir flood planning and development control. “At present it is not clear if planning authorities take any cognisance of reservoirs upstream of any proposed development. As under the proposed new legislation, downstream development could result in a reservoir moving from low to high consequence with attendant significant additional costs to the reservoir Undertaker, we believe that consideration of the impact of development on upstream reservoirs should be a mandatory requirement on planning authorities” (Scottish Government 2010m).
**ANNEXE A: NUMBER OF RESERVOIRS PER LOCAL AUTHORITY**

<table>
<thead>
<tr>
<th>Enforcement Authority</th>
<th>Number of reservoirs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highland</td>
<td>127</td>
</tr>
<tr>
<td>Argyll and Bute</td>
<td>76</td>
</tr>
<tr>
<td>Perth and Kinross</td>
<td>55</td>
</tr>
<tr>
<td>Comhairle nan Eilean Siar</td>
<td>45</td>
</tr>
<tr>
<td>Dumfries and Galloway</td>
<td>38</td>
</tr>
<tr>
<td>Stirling Council</td>
<td>33</td>
</tr>
<tr>
<td>Fife</td>
<td>25</td>
</tr>
<tr>
<td>Scottish Borders</td>
<td>26</td>
</tr>
<tr>
<td>Aberdeenshire</td>
<td>19</td>
</tr>
<tr>
<td>East Renfrewshire</td>
<td>19</td>
</tr>
<tr>
<td>South Lanarkshire</td>
<td>19</td>
</tr>
<tr>
<td>Angus</td>
<td>17</td>
</tr>
<tr>
<td>Inverclyde</td>
<td>15</td>
</tr>
<tr>
<td>North Ayrshire</td>
<td>17</td>
</tr>
<tr>
<td>East Dunbartonshire</td>
<td>8</td>
</tr>
<tr>
<td>Renfrewshire</td>
<td>13</td>
</tr>
<tr>
<td>North Lanarkshire</td>
<td>11</td>
</tr>
<tr>
<td>West Dunbartonshire</td>
<td>9</td>
</tr>
<tr>
<td>Orkney Islands</td>
<td>10</td>
</tr>
<tr>
<td>East Ayrshire</td>
<td>7</td>
</tr>
<tr>
<td>South Ayrshire</td>
<td>9</td>
</tr>
<tr>
<td>City of Edinburgh</td>
<td>10</td>
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<tr>
<td>East Lothian</td>
<td>8</td>
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<tr>
<td>Midlothian</td>
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<td>Moray</td>
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<tr>
<td>West Lothian</td>
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<tr>
<td>Aberdeen City</td>
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<td>Falkirk</td>
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<tr>
<td>Shetland Islands</td>
<td>4</td>
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<tr>
<td>Glasgow</td>
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<tr>
<td>Clackmannanshire</td>
<td>1</td>
</tr>
<tr>
<td>Dundee City</td>
<td>1</td>
</tr>
</tbody>
</table>
SOURCES


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SB 09-22 Flood Risk Management (Scotland) Bill : Stage 3

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