



Department
for Environment
Food & Rural Affairs

Post Implementation Review, Reservoir Safety

The Reservoirs Act 1975 (Capacity, Registration,
Prescribed Forms, etc.) (England) Regulations 2013

Date: 7th September 2023

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<p>Title: The Reservoirs Act 1975 (Capacity, Registration, and Prescribed Forms) (England) Regulations 2013</p> <p>PIR No: N/A</p> <p>Original IA/RPC No: N/A</p> <p>Lead department or agency: Defra</p> <p>Other departments or agencies: Environment Agency</p> <p>Contact for enquiries: Alys Owen: alys.owen@defra.gov.uk and Jan Kiernan: jan.kiernan@defra.gov.uk</p>	Post Implementation Review
	Date: 07/09/2023
	Type of regulation: Domestic
	Type of review: Statutory
	Date measure came into force: 30/07/2013
	Recommendation: Amend
RPC Opinion: N/A	

1. What were the policy objectives of the measure?

Reservoir safety legislation aims to prevent uncontrolled releases of water from reservoirs, which can endanger human life and cause widespread flooding. The Reservoirs Act was introduced in 1975. The Floods and Water Management Act 2010 amended the 1975 Act to include a more risk-based approach. Large, raised reservoirs (LRR) which are designated by the EA as “high-risk reservoirs” must be supervised and inspected by a qualified civil engineer. Reservoir owners must implement safety measures recommended by the engineer. For reservoirs designated as “not high risk”, the regulatory requirements were reduced.

The regulations reviewed in this PIR ([Capacity, Registration and Prescribed Forms](#)) relate specifically to the registration requirements, certificates and forms which must be completed by reservoir undertakers and engineers. This includes:

- reservoir registration requirements (including notifications of changes)
- prescribed forms of records, and
- day-to-day safety management measures (such as calculating the capacity of a large-raised reservoir and recording top water levels).

The regulations include 6 Schedules which provide details of requirements e.g. the content and wording of records and reports.

They work in tandem with the regulations reviewed in a second, related PIR ([Exemptions, Appeals and Inspections](#)).

2. What evidence has informed the PIR?

Evidence has been provided by the Environment Agency, as the regulator for England. The 2021 Reservoir Safety Review (by Professor Balmforth) and the recommendations it made were also considered.

Views were also invited from the Panel Engineers Committee (PEC) (comprising 7 reservoir panel engineers) and a sample of reservoir owners (undertakers) (see Annex D). These views are not comprehensive or representative of the whole reservoir sector but have provided insight about how the safety regime operates at present. Further views will be sought throughout the ongoing Reservoir Safety Reform Programme and any amendments proposed in this PIR will undergo formal consultation ahead of any regulatory reform.

Annex B provides further detail on the approach taken.

3. To what extent have the policy objectives been achieved?

The policy objective of the Reservoir Act 1975 (as amended in 2010) is to ensure public safety through imposing statutory obligations on undertakers (i.e. owners) of large raised reservoirs (LRRs). They must have their reservoirs supervised and periodically inspected by qualified civil engineers to ensure the safety of the structure.

The regulations that are the subject of this PIR, relating to Capacity, Registration and Prescribed Forms, work in parallel with [The Reservoirs Act 1975 \(Exemptions, Appeals and Inspections\) \(England\) 2013](#) to specify the actions and information required for the ongoing application of the safety regime. This approach ensures that the risk of dam failure causing flooding which could endanger life is kept low and continually managed.

Findings from Professor Balmforth's 2021 Review of Reservoir Safety and information collected from relevant parties during this review demonstrate that the regulations:

- continue to be needed
- are broadly doing what was intended
- could be made more effective by clarifying some of the regulations themselves, and by issuing updated guidance to undertakers and engineers.

The regulations have been effective in setting out information-sharing requirements. There is good compliance with the regulations (for example, no cases of a high-risk reservoir not having a Prescribed Form of Record). There are some occasional examples of misunderstandings, misinterpretation and missing information which could be addressed to improve the effectiveness of the regulations and their application.

This PIR has been undertaken alongside the joint Defra and Environment Agency Reservoir Safety Reform (RSR) Programme which is underway to strengthen and modernise the existing reservoir safety regime. Amendments to regulations which are suggested throughout this review will be integrated into the programme planning work, to be considered alongside the Balmforth Review (2021) recommendations. The proposed amendments captured within this PIR will undergo formal consultation ahead of any regulatory reform.

Details of proposals which have emerged throughout this PIR are outlined in Annex C. The areas to be considered for possible regulatory amendments are:

- the approach to cascade reservoirs when calculating reservoir capacity
- requiring additional registration information including contact details and reservoir usage
- timings of reservoir registration, including for reservoirs under construction and pre-existing reservoirs
- holding the public register of reservoirs online
- the Environment Agency reporting to the Secretary of State on reservoir safety regulation every year rather than every two years
- adjustments to the reservoir information required in the Prescribed Form of Record
- standardisation and digitalisation of engineers' certificates, reports and directions, and
- requirements on the assessment of the quality of engineers' reports.

Sign-off for Post Implementation Review: Chief economist/Head of Analysis and Minister

I have read the PIR and I am satisfied that it represents a fair and proportionate assessment of the impact of the measure.

Signed: ***Clare Rowntree – Head of Analysis & Evidence for Floods, Water and Contamination***

Date: 24/05/2023

4. What were the original assumptions?

The Flood and Water Management Act 2010 amended the Reservoirs Act 1975 to introduce a more risk-based approach. For reservoirs designated as “not high-risk”, there was a relaxation of regulation; those designated as “high risk” continued with the same level of regulation and inspection. The [2011 Impact Assessment](#) considered the cost and benefits of applying this risk-based approach.

The regulations considered in this PIR (*Capacity, Registration and Prescribed Forms*) and those in the corresponding PIR (*Exemptions, Appeals and Inspections*) did not undergo independent Impact Assessments, as they cover the practical application of the wider policy shift towards a risk-based approach for large, raised reservoirs, rather than the policy shift itself. For example, high/low risk designations cannot be made until a reservoir is registered. Registration requirements are included in these regulations (Regulation 4).

As there is no specific Impact Assessment for the regulations reviewed here, the original assumptions relate to the broader context of the designation process. The key assumption was that 55% of LRR would be designated as ‘not high risk’. However, the outcome of the process has been that only 12.6% have been designated as ‘not high risk’. The disparity occurred as the original assumptions were based on risk of loss of life alone and did not include the impact of risk to infrastructure. Following public consultation, the EA agreed to include the impact to affected infrastructure in the designation process. This resulted in an overestimation of the benefits of deregulation in the original impact assessment. In the 2011 Impact Assessment, the benefits of introducing high risk designations were estimated at £4.2 million annually. They have averaged £0.3m p.a. between 2017-2022. Registration costs averaged £0.001 million (£1,178) annually, showing a strong benefit to cost ratio.

Some costs assumed in the Impact Assessment relating to these regulations were not passed to reservoir owners. The EA did not charge £60 for registration as expected in the 2011 Impact Assessment. There is no registration charge as the cost to EA of collecting the fee was higher than the amount collected.

5. Were there any unintended consequences?

Yes. While the regulations are generally thought to be well understood and followed, there are some areas of misunderstanding or confusion around:

- registration requirements when the regulator identifies a pre-existing reservoir that is not currently being regulated
- how and where S12(6) directions (where a Supervising Engineer requires visual inspection of a reservoir by an undertaker) should be included in annual inspection reports

- how to use the S10(6) certificate (which certifies that Measures in the Interest of Safety have been carried out) in cases where there are several measures to be completed to different timescales
- the split of responsibilities between owners and engineers when testing and revising emergency flood plans, and
- whether near miss incidents need to be reported.

Some of these may be resolved through guidance, and others may require legislative changes – this will be considered and taken forward as part of RSR etc.

Reservoir owners additionally note some instances of difficulty in interpreting jargon used by engineers in their forms/reports. Also, though the PEC did not identify any areas of significant misinterpretation, it has been noted that in some cases, more clarity on what constitutes the undertaker's responsibility, and what lies with engineers is required.

Various suggestions for improvement and clarity have been identified within these reviews. As outlined in Question 3, proposals, and amendments to rectify unintended consequences will be considered within the RSR Programme.

6. Has the evidence identified any opportunities for reducing the burden on business?

Several opportunities have been identified to reduce the burden to business.

- The standardisation of forms and reports could reduce burden for engineers, undertakers and the regulator and improve consistency and compliance (e.g. in some cases, the regulations outline the information required in certain certificates, but do not provide a standard template to use when providing the information to the regulator).
Standardisation is supported by the PEC who also favour the introduction of electronic forms for online record-keeping to simplify the reporting process and reduce burden. The EA are currently undertaking a project (RACE2) to create an online, centralised format for certificates, forms, and reports. The project plans to follow a phased approach starting with Supervising Engineers' annual statements (S12s). Suggestions from data collected for the purpose of these reviews will be fed into this work.
- Keeping the public register in the Principal Office of the Regulator is an outdated approach and makes access difficult. An online register would be less burdensome for businesses and regulators. This will be considered in line with the wider Reservoir Safety Reform (RSR) programme.
- Areas of misunderstanding could be clarified through a combination of regulatory amendments (see Annex C) and the creation of regulator-owned guidance, a gap identified by both the EA and the Balmforth Review. This would reduce the burden on

undertakers/engineers who contact the EA for specific guidance, and on the EA who receive queries. The provision of such guidance will be considered in tandem with proposals for legislative amendments, throughout the RSR programme.

7. How does the UK approach compare with the implementation of similar measures internationally, including how EU member states implemented EU requirements that are comparable or now form part of retained EU law, or how other countries have implemented international agreements?

Section 5 of Balmforth's Review: "*International Practice of Reservoir Safety Management*" compares the UK approach to reservoir safety with key principles of the International Commission of Large Dams (ICOLD) and the World Bank. ICOLD focuses on international reservoir safety management. The World Bank considers reservoir regulation and governance. Both support a risk-based approach to reservoir safety management and concur that responsibility for reservoir safety lies primarily with the owner. The regulator is responsible for maintaining public safety and ensuring the safety regime is applied. The approach in England follows this model.

Annex A: PIR Recommendation and Overview

1. This PIR recommends retaining and amending these regulations to improve their effectiveness in some areas. This will enable the overall success of these regulations in ensuring high levels of reservoir safety to continue, while reducing regulatory burdens to undertakers and engineers and strengthening them further.
2. The review of these regulations is part of a wider reform programme. Following the incident at Toddbrook Reservoir in 2019, the Balmforth Review of Reservoir Safety made a strong case for modernising regulations towards a more proportionate risk-based approach to improve safety practice and strengthen roles and responsibilities for owners, engineers, and the regulator.
3. Following this review we began a joint Defra/EA reform programme to strengthen and modernise reservoir safety regulations in line with a more proportionate, risk-based approach ([Written Ministerial Statement](#))¹. These PIRs have therefore been undertaken within the context of this joint Reservoir Safety Reform Programme.
4. The reform programme is to be delivered steadily over several years and will involve implementing the recommendations through a mix of guidance, secondary legislation and, subject to parliamentary time, new primary legislation to modernise the Reservoirs Act 1975. Not all recommendations will be implemented in one go; it will be a phased approach.
5. The information which has been gathered for these PIRs will be considered as part of the joint programme. Amendments to the regulations which have emerged through these PIRs will be embedded into the ongoing Reservoir Safety Reform (RSR) programme, underway between Defra and EA to strengthen and modernise reservoir safety regulations. The individual amendments proposed throughout this review will be considered within the programme and will undergo formal written consultation ahead of regulatory amendment.
6. Details of proposals which have emerged throughout this PIR are in Annex C. Together they will better enable clarity and consistency between EA as the regulator, reservoir engineers and undertakers in their approach to managing, monitoring, and reporting on reservoir safety.

¹ Reservoir Safety – reforming the safety regime and modernising legislation for England. [Written Ministerial Statement](#), 20 July 2022.

The areas to be considered for possible regulatory amendments are:

- the approach to cascade reservoirs when calculating reservoir capacity
- requiring additional information for reservoir registration including contact details and reservoir usage
- timings of reservoir registration, including for reservoirs under construction and pre-existing reservoirs
- holding the public register of reservoirs online
- the Environment Agency reporting to the Secretary of State on reservoir safety regulation every year rather than every two years
- adjustments to the information required in the Prescribed Form of Record for a reservoir
- standardisation and digitalisation of engineers' certificates, reports, and directions, and
- requirements for the assessment of the quality of engineers' reports.

Annex B: Review Approach

1. This is the second review of these regulations. In 2018, a single, joint [PIR](#) was undertaken on both [The Reservoirs Act 1975, Capacity, Registration and Prescribed Forms](#) and [The Reservoirs Act 1975, Exemptions, Appeals and Inspections \(2013\)](#). The review recommended keeping the regulations without amendment.
2. This latest PIR is based on information provided by
 - EA as the regulator, as well as questionnaire responses from
 - the Panel Engineer Committee (PEC) and
 - a sample of reservoir undertakers (i.e. owners) (see Annex D).The questions posed to the EA, PEC and undertakers sought insight on both the content and process behind complying with these regulations.
3. This PIR has been undertaken alongside a corresponding review on [The Reservoirs Act 1975, Exemptions, Appeals and Inspections \(2013\)](#). Due to the overlapping content between the PIRs, questions on both sets of regulations were asked together. Questions differed depending on the recipient (EA, engineer, or undertaker), but broadly followed a similar, open-ended approach. This resulted in the successful collection of detailed and well considered narrative which is explored throughout the reviews.
4. Information gathered in these PIRs will be used to help inform future consultations that will be carried out part of the Reservoir Safety Reform Programme but will not be relied upon in isolation due to the comparatively small sample size.

5. In responding to the questions, some stakeholders provided comments relating to reservoir safety measures outside of the scope of these PIRs. While not included in this report, we value the additional information received and will consider them within the wider scope of the RSR Programme.

Annex C: Review of Regulations

6. This Annex considers information received from the EA, PEC and undertakers on each regulation in turn. Some regulations (e.g. *Regulation 1. Citation, commencement, extent and application*) are not included as they provide context rather than direction. Suggested amendments to the regulations outlined below will be considered within the Reservoir Safety Reform (RSR) Programme. Amendments which are deemed necessary will undergo formal written consultation ahead of any regulatory change.

Regulation 3 - Calculation of capacity for a Large Raised Reservoir

7. Regulation 3 states that “*an undertaker must calculate the capacity of a large raised reservoir by measuring the maximum volume of water in cubic meters capable of being stored in the reservoir above the bed of the reservoir*”. The bed of the reservoir “*includes any silt or other material that is judged... to be incapable of flowing out of the reservoir over natural ground in the event of an uncontrolled release of water from the reservoir*”. Questions have been raised about the definition of silt in this context. This could perhaps be further clarified through guidance.
8. The regulations do not include explicit mention of cascade reservoirs (which alone, are less than 25,000m³ but are adjacent to another reservoir which, when considered together, are over 25,000m³). The EA have reported uncertainty as to whether cascade reservoirs require registration collectively when they would fall under the regulatory threshold when considered individually and should thus be included in Regulation 4. Section A1(5) of the Act stipulates that “*The Minister may by regulations provide for a structure or area to be treated as “large” by reason of proximity to, or actual or potential communication with, another structure or area*”. No such regulations have been made.
9. An undertaker additionally noted that calculating capacity of some flood storage reservoirs is complex due to multiple outlets, spillway levels and embankment heights. The capacity of reservoirs, including how this is calculated will be considered as part of work on developing a new Hazard Classification for reservoir safety.

10. Further work will be undertaken on both the definition of silt and the position of cascade reservoirs to identify whether changes are needed and if so, whether these are matters for guidance, regulation, or part of work to develop a new Hazard Classification.

Regulation 4 - Registration requirements

11. The EA have suggested that including the additional information below in the registration requirements would assist with communications and regulation. If collected, this information would be held by the regulator.

Table 1: Registration Requirements - Additional Information

<ul style="list-style-type: none"> • Contact details and email address of primary contact for an undertaker
<ul style="list-style-type: none"> • Full details of joint undertakers, or those with a vested interest alongside clarification on the shared nature of undertaking (e.g., whether there are legal agreements in place; a primary undertaker; or other interested parties which should be included in any correspondence)
<ul style="list-style-type: none"> • Company information where an undertaker is a limited company for enforcement purposes (e.g., Limited company number and legal name)
<ul style="list-style-type: none"> • Billing address
<ul style="list-style-type: none"> • Reservoir use (e.g., irrigation, drinking water supply, recreation, flood risk management, multiple) to aid risk management, specific communications, and trend analysis.

These additions will be considered as part of the ongoing RSR programme.

Registration of Reservoirs Under Construction:

12. S21(1) of the Reservoirs Act 1975 requires information to be provided to the regulator 28 days before work begins on constructing or altering a reservoir or bringing it back into use. Although the EA receives information at this point, Regulation 4 stipulates that formal registration is only required after the construction of a reservoir. An amendment to the regulations has been suggested to capture formal registration when construction begins rather than after it is finished.

13. The registration of reservoirs under construction will be considered as part of the ongoing RSR programme.

Registration of Pre-existing Reservoirs

14. The EA has reported confusion about what should happen when it finds a reservoir which already exists but has not previously been registered. Normal practice is to follow the principles of Section 25 (which applies when a reservoir is constructed or altered) to appoint a construction engineer to report on the condition of the reservoir, and to undertake any works to make the reservoir safe, after which they will submit a final certificate under Section 8(5)). The reservoir would then be registered after that final certificate is issued. EA also identifies uncertainty about how/whether the requirement to provide the S21(1) registration information before work begins on a reservoir applies in these cases, as there is no construction work.
15. Proposed amendments to the detail and timing of registration requirements will be considered within the Reservoir Safety Reform Programme.

Regulation 5 - Notifications of Changes to the English Register

16. Regulation 5(1) states that *“where there has been a change or addition to any of the information registered in accordance with regulation 4, the undertaker must provide the Agency with the relevant and up to date information within 28 days”*. EA report that while some changes are notified to the regulator proactively, at times the regulator becomes aware of changes reactively via emails mailouts, general updates or through other means (e.g. submission of a S12 report).
17. In 2021 and 2022, the following updates to the English Register occurred (approximate):
 - 200 undertaker changes
 - 400 engineer changes
 - 84 changed physical status (“Under Construction” to “In Operation” or vice versa)
 - Between 100 and 200 reservoir detail changes (e.g. name, capacity of the reservoir etc. – however, in some cases it is not clear if these were due to physical changes on site, or administrative updates to records)
18. Undertakers have requested online access to their registered information to allow them to review and update information without alerting the EA directly. It has also been suggested that registration information is reviewed as part of the S10 reservoir inspections.
19. The EA are currently undertaking a project (called RACE2) to create an online, centralised format for certificates, forms, and reports. This may be a way to address these issues and will be considered following this review.

Regulation 6 - The Keeping and Inspection of the English Register

20. Regulation 6(1) states that the public register must be held securely offline in the principal office of the Regulator (Manley House, Exeter). This practice is outdated and burdensome for those wishing to inspect the register. Undertakers and the Regulator have requested online access to their registered information.
21. In 2020 the EA were challenged by the Information Commissioner's Office to amend the information held and how it is released. The Information Commissioner recommended that, to meet FOI requirements, regulations should be amended to be less restrictive. The Commissioner required EA to permit access and use of the register under the Open Government Licence rather than the Conditional Licence.
22. Amendment to the regulations to reflect a more up to date, digital approach to the register will be considered as part of the reform programme.

Regulation 8 - Reports by the Agency to the Secretary of State

23. Professor Balmforth's review of reservoir safety recommended an increase in the frequency of EA reporting, shifting from a two yearly to annual report to the Secretary of State ([Recommendation 14a](#)), to ensure that the public readily understand how reservoir risk is managed, and are assured of its effectiveness. This proposal will be considered as part of the reform programme.

Regulation 9 - Records of Water Levels etc.

24. This regulation is about the Prescribed Form of Record (PFoR), which is a document containing details about the reservoir and its operation which is held by the undertaker. This regulation refers to Schedule 2 *Prescribed form of record* and Schedule 3 *Prescribed matters relating to high-risk reservoirs of which an undertaker is to keep a record*.
25. The PEC and reservoir undertakers have made the following suggestions for improving the information listed in Schedule 2:

Table 2: Prescribed Form of Records

Part of Prescribed Form	Suggestion from PEC	Suggestion from undertakers
Part 1 (<i>Water Levels and Depth of Water</i>)	As water levels for service reservoirs can vary by 50% over a 24-hour period, this section could be better recorded as a <i>max</i> and <i>min</i> over specified period (e.g., a week).	

Part 2 (<i>Leakages, Settlements of walls or other works and repairs and instrument readings</i>)	As many dams have several instruments, this section could be simplified by referencing the location of the data rather than entering each into the PFor.	
Part 4 (<i>Flood Plan Details</i>)	To avoid duplication with the flood plan, this section could be shortened.	Add the date an onsite flood plan has been certified, listing updates. Add the date and details of any direction to test a flood plan, and any updates.
Part 10 (<i>Supervising Engineer Directions and Recommendations</i>)	This section could be clarified to situate the direction more clearly under Section 12(6), or Section 12(AA).	Add sections on Supervising Engineer advice under S20(4)(e)(i)
Part 12 (<i>Certificates, Reports, Directions and Referees</i>)	As certificates and directions by Supervising Engineers are captured in Part 10, they do not need to be duplicated in Part 12.	
Part 14 (<i>Drawing Register</i>)	The addition of columns for originator and status (contract or as built) would be a beneficial addition. The section for “ <i>approved date</i> ” could be shortened to “ <i>date</i> ” as most drawings have multiple approval dates (by originator, undertaker etc.). The inclusion of registers of investigations and engineering reports other than S10 and S12 reports e.g., topographic surveys, ground investigations, flood studies, geotechnical assessment, seismic assessment, and risk assessment would be beneficial.	Make this a drawing and document register. This would record flood studies, seismic assessments, slope stability assessments, leakage investigation factual reports, ground investigation factual reports, etc.
Part 16 (<i>Extent of Opening of Valves,</i>	This section could be limited to a description of the valves etc.	

<i>Gates, and Penstocks)</i>	present, as their operation is recorded in Part 1.	
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Additional suggestion from undertakers
Add statutory maintenance under 10(3)(b)
Add records under the 1930 Act to ensure this data is not lost as archives are moved to digital storage.
Add an appendix to capture what needs to be delivered to achieve certification and offer space for a Panel Engineer to offer any further advice.

- 26. Undertakers favour a simplification of the PFoR and have raised instances of variability in how the PFoR is completed and confusion over who completes certain sections (e.g. undertakers or engineers).
- 27. The EA is currently exploring greater consistency through electronic reporting as part of the RACE2 project.
- 28. Suggestions and amendments to the PFoR will be jointly considered by the RSR Programme and RACE2 project.

Regulation 10 - Forms of certificates of engineers

- 29. This regulation refers to Schedule 4 which sets out the content of certificates which engineers must provide. The EA believes that, when filled correctly, the content of certificates provides adequate information to monitor compliance. They do not, however, always provide enough information for an enforcement officer who would benefit from the addition of an Appendix to capture the content of prior certificates for context.
- 30. While the forms are generally well understood the EA have indicated some instances of confusion over how to use the S10(6) certificate (which certifies that Measures in the Interest of Safety have been carried out) in cases where there are several measures. Some engineers provide a partial S10(6) in the prescribed form when each measure is completed, with others updating the regulator via email. To improve consistency and help with compliance monitoring (especially where a reservoir has multiple measures required with different deadlines), EA would like:

- the full details of each measure to be contained within the certificate, alongside
- the introduction of a prescribed form for a partial S10(6) certificate for each measure which includes detail of works which have been undertaken.

31. EA would like the form to specify an 8/10-digit format for the National Grid Reference to avoid variation.
32. Divergence from the prescribed form most frequently occurs when newer certificates are used which engineers are less familiar with (notably those which relate to preparing flood plans Section 12AA 3,4 and 7). Guidance on newer certificates could address this issue.
33. EA also notes variation in discontinuance certificates. Some certify when a reservoir has been discontinued and can no longer hold 10,000 m³ and some to 25,000 m³. As the prescribed form dictates only to specify (*t*) cubic metres, both are compliant. However, clarity as to whether the reservoir has been completely removed or remains with some holding capacity would be beneficial for informing flood risk planning.
34. As mentioned above, greater consistency through electronic reporting is currently under investigation by the EA as part of the RACE2 project. The above suggestions will be considered via both RACE2 and the RSR programme and link to recommendations made by Professor Balmforth to improve MIOS management and reporting.

Regulation 11 - Forms of reports of engineers

35. This regulation refers to Schedule 5 which sets out the forms for engineers' reports. There is currently no prescribed form for supervising engineers' statements. Introducing one could improve consistency and make interpreting compliance easier. As part of the RACE2 Project, the EA is developing a central online submission tool for S12 reports. This will both provide a prescribed form and centralise their completion. The RSR programme will look at whether there is a need for regulation on the content of S12 reports.
36. It has also been suggested by the PEC that reports would benefit from the inclusion of information about:
- failure due to internal erosion in the embankment or dam foundation, and
 - a general assessment of potential failure modes at each reservoir (including how the likelihood of failure is being managed to reduce risk).
37. Schedule 5 says that reports must include the engineers' recommendations on measures of the interest of safety. EA recommend further details of MIOS be

included, highlighting particularly information about deadlines, and interim deadlines where one measure may be reliant on the outcome of another (for example, construction works planned based on the outcome of a study).

38. The power at Section 20A of the Reservoirs Act to make regulations for the assessment of the quality of engineers' reports has yet not been implemented.

39. As for the regulations above, these suggestions for change will be considered by the EA as part of the RACE2 project on greater consistency through electronic reporting, and/or the RSR programme.

Regulation 12 - Forms of directions of Engineers

40. Regulation 12 refers to Schedule 6 which sets out the forms for different types of directions that can be given by engineers.

41. The EA would welcome improvements for confirming when an undertaker is or is not compliant with directions. They suggest that for directions given by an inspecting engineer, a supervising engineer should report on this in a S12 annual statement. There is also limited means for the EA to follow up on noncompliance of 12(6) directions for a visual inspection of the reservoir, as this is an action to be done by the undertaker between engineer's visits.

42. EA report inconsistencies in the issuing of S12(6) directions (where a Supervising Engineer requires visual inspection of a reservoir by an undertaker). These included:

- 3 directions given independently of the S12 report (sent as a formal Direction document by email in the prescribed form)
- 4 directions noted in the S12 report, and a formal Direction document included in the appendices, rather than the relevant S12(6) section
- 5 S12 Statements have included a direction in the relevant section of their statement but were not in the prescribed form
- Others with S12 statements wrongly marked as having a 12(6) Direction included when they did not, or where an engineer has used the S12(6) Direction header to repeat the general monitoring recommendations made by the engineer.

43. Data from the PEC implies differing levels of understanding between the EA and reservoir engineers on whether their completion is optional. Guidance may be helpful to clarify that information on S12(6) directions should be included in the correct section of a S12 statement, even if to indicate that there is no direction.

44. The PEC also reported uncertainty around directions under 12AA(4) and 12AA(7) which related to the testing and revision of flood plans. Guidance on the split of responsibilities for the testing and revision of flood plans lies between the undertaker or appointed engineer may be helpful.
45. Reservoir owners have also indicated that misunderstanding of directions can at times occur from engineers using jargon. This can be improved through guidance and discussion between engineers and undertakers of the practicalities of undertaking the necessary requirements on site, rather than through regulatory change.

Regulation 13 - Prescribed information under section 21(1) to be provided by undertakers when intending to construct or bring back into use a large-raised reservoir

46. As mentioned in Regulation 4 there is uncertainty about how the requirement to provide S21(1) information before work begins on a reservoir applies in the cases when it finds a reservoir which already exists but has not previously been registered.
47. Clarity on Regulation 13 will be included when considering amendment to Regulation 4 (Registration requirements).

Regulation 14 - Reports to the Agency

48. This regulation applies to any incident which results, or could result, in the uncontrolled release of water from a LRR. Where this regulation applies, undertakers must send the EA both a preliminary report and final report of the incident.
49. There have been 67 incidents reported of varying levels of severity since the SI came into effect in 2013. Further details can be found in the EA's post-incident reporting for reservoirs annual report².
50. Reports are generally provided on time or after a reminder is sent (there are currently 4 outstanding final reports.) However, there is no means to know if all incidents are being reported. On occasion the EA have received verbal notification of an incident, requesting advice on whether it qualifies to be reported. A trend of increased frequency of incident reporting has been noted by the EA. There is no

² Post-incident reporting for reservoirs: [annual report](#) 2021

statistical evidence as to whether this means there are more incidents occurring, or if reporting procedures are improving.

51. The average time between an incident and the preliminary incident report being provided is 30 days and the average time between an incident occurring and a final incident report is 340 days. Often updates are provided as added information becomes available, for example after further site investigations.
52. One undertaker requested that extensions to the deadline for a final report should be granted if mitigation works extend beyond 1 year. Others found timing for the final report (1 year) clear and appropriate.
53. Both the PEC and undertakers note that the provision for the preliminary report to be completed “*as soon as practicable after the commencement of the emergency measures*” (14 2(b)) is open to a level of interpretation. Undertakers have also noted a lack of clarity on who should create and submit both reports (the undertaker or the Supervising Engineer). Rather than regulatory amendment, guidance on the procedure, timeframes and format for incident reports could help.
54. Undertakers suggested incident reports should outline if the onsite emergency plan was activated, whether it reduced impacts or prevented the incident, and any proposed changes to the plan following the incident. This suggestion will be considered as part of the RSR programme.
55. The regulator has received just one case of a near miss incident being reported using the current incident reporting process (as of December 2022). Professor Balmforth recommended a revision to include reporting of near misses and anonymous reporting (Recommendation 9c). This view is supported by the PEC who favour pro-active reporting of smaller scale incidents and positive interventions taken to prevent incidents occurring through the provision of an on-going incident report instead of having the information in the EA’s reports to the Secretary of State.
56. Regulation 14 does however, include near misses. It says, “*this regulation applies in relation to any incident which results, **or could result**, in the uncontrolled release of water from a large raised reservoir*”. Guidance may be helpful to better publicise and explain this point to ensure that near miss incidents are reported.

Annex D – PIR Questionnaires

1. Please see below the information and questionnaire template shared with a selection of reservoir owners and the PEC. These questions were shared alongside

a questionnaire for the corresponding PIR on [The Reservoirs Act \(1975\), Exemptions, Appeals & Inspections.](#)

Table 3: PIR Questions for Reservoir Owners

These questions seek to understand the clarity and effectiveness of day-to-day reporting and safety management measures.

This information will feed into the regular “post implementation review” that is required every 5 years for these two sets of regulations. The review enables us to understand the extent to which these regulations are maintaining high levels of safety without causing undue burden for reservoir engineers and undertakers.

Essentially, we want to know; are the measures in the regulations easy to undertake, are they effective and do they remain fit for ensuring high levels of safety? If there are areas which could be improved, please indicate how.

We would be grateful if you could make it clear in your responses which question you are answering at each point (A1, A2, A3, A4, A5, B1, B2 or B3). Please answer in either sentences or bullet points, providing a maximum of 150 words per question.

The Reservoirs Act 1975 (Capacity, Registration, Prescribed Forms, etc.) (England) Regulations 2013

- This regulation relates to the registration requirements, certificates and forms which must be completed by reservoir owners and engineers. This includes reservoir registration requirements (including notifications of changes), prescribed forms of records, and day-to-day safety management measures (such as calculating the capacity of a large-raised reservoir and recording top water levels).

1. <u>Broad Question</u>	What do you think of the requirements these regulations impose on reservoir owners? If you have suggestions for improvements, please indicate them.
2. <u>Interpreting and acting on information</u>	How easy/difficult is it to interpret and act on information provided to you by a reservoir engineer (e.g., capacity calculations and top-water levels)? If you have suggestions for improvements, please indicate them.
3. <u>Registration Reports</u>	What do you think of the requirements for registering a new reservoir or making changes to an existing one? Are they appropriate/inappropriate for achieving high

	levels of safety without undue burdens? If you have suggestions for improvements, please indicate them.
4. <u>Prescribed Forms of Records</u>	What do you think of the prescribed forms of records? Do they enable/inhibit you from being effective in good reservoir safety management without creating undue burdens? If you have suggestions for improvements, please indicate them.
5. <u>Incident Reporting</u>	What do you think of the incident report? Specifically, is the time between the preliminary and final incident report appropriate/inappropriate? Is the level of information required appropriate to help improve future safety management without undue burdens? If you have suggestions for improvements, please indicate them

Table 4: PIR Questions for the Panel Engineers Committee (PEC)

These questions seek to understand the clarity and effectiveness of day-to-day reporting and safety management measures.

This information will feed into the regular “post implementation review” that is required every 5 years for these two sets of regulations. The review enables us to understand the extent to which these regulations are maintaining high levels of safety without causing undue burden for reservoir engineers and undertakers.

Essentially, we want to know; are the measures in the regulations easy to undertake, are they effective and do they remain fit for ensuring high levels of safety? If there are areas which could be improved, please indicate how.

We would be grateful if you could make it clear in your responses which question you are answering at each point (A1, A2, A3, A4, B1, B2 or B3). Please answer in either sentences or bullet points, providing a maximum of 150 words per question.

The Reservoirs Act 1975 (Capacity, Registration, Prescribed Forms, etc.) (England) Regulations 2013

- These regulations relate to the registration requirements, certificates and forms which must be completed by reservoir owners and engineers. This includes

reservoir registration requirements (including notifications of changes), prescribed forms of records, and day-to-day safety management measures (such as calculating the capacity of a large-raised reservoir and recording top water levels).

1. <u>Broad Question</u>	What do you think of the requirements these regulations impose on reservoir engineers? If you have suggestions for improvements, please indicate them.
2. <u>Prescribed Forms of Records</u>	What do you think of the prescribed forms of records? Do they enable/inhibit you from providing the right level of information to owners and operators to ensure high levels of safety without undue burdens? If you have suggestions for improvements, please indicate them.
3. <u>Incident Reporting</u>	What do you think of the incident reporting process? Specifically, is the time between the preliminary and final incident report appropriate/inappropriate? Is the level of information required appropriate to help improve future safety management without undue burdens? If you have suggestions for improvements, please indicate them.
4. <u>Format of Reporting</u>	What do you think of the format used in the certificates, directions and reports required in these regulations? If you have suggestions for improvements, please indicate them.

Annex E – Additional Information Received

1. As noted above, some information has been provided by stakeholder which sits outside of the regulations considered in these PIRs. We have recorded all additional data and will consider broader suggestions within the RSR programme.