

The British Dam Society – Questions for the Environment Agency & Defra regarding the new on-site flood plan ministerial direction and accompanying guidance

Ministerial Direction / Guidance

1 The guidance issued with the direction details a number of time constraints including a maximum 5-year interval between the certification of Flood Plans, an in-depth review every 5 years, and 5 or 10-year intervals for full incident simulation testing of plans. There are no time requirements detailed in Sections 12A and 12AA of the Act or in the Ministerial Direction. Is it intended to issue a future legally enforceable direction or keep this as guidance?

Q1: The Direction to undertakers requiring them to prepare a flood plan remains in force unless or until revoked. It is essential that flood plans are maintained and continue to be fit for purpose over time. The guidance sets out expectations for this, including the need for a renewed certification every five years that is needed to confirm these plans are in place and remain current. The Environment Agency will keep the guidance under review and welcomes feedback and examples of good practice which might be shared. In addition, directions made by engineers to undertakers about how and when testing a flood plan should occur, and about revising a flood plan are legally binding and failure to comply with an engineer's direction would be an offence. The Environment Agency can give advice on the legal requirements as needed.

2 In the recent BDS presentation, it was indicated that a certificate for a Flood Plan must be issued within the initial 12-month period from the direction being issued, in other words, by 21 April 2022. However, the Ministerial Direction only states that a "Flood Plan" must be produced within the time period. It does not state the standard of completeness or that it must be certified for publication within this timescale. The associated guidance is also vague on the matter. If an Undertaker has produced a draft version of a Flood Plan but has not yet had this certified by 21 April 2022, will they be considered non-compliant with the Act?

Q2: The certification of an on-site emergency flood plan by an engineer is the regulatory proof that an undertaker is compliant and that the flood plan meets the requirements of the Direction. Where flood plan certificates for reservoirs are not received by the Environment Agency by 21 April 2022, these will be followed up and may be investigated as potential non-compliances.

3 Section 20(4)(h) of the Act states that a copy of directions under sections 12AA(4) and 12AA(7) must be issued to the Enforcement Authority. Will anyone be checking the directions made by Appointed Engineers to assess their suitability and whether they have been correctly applied? If any directions are considered deficient, will action be taken and, if so, what?

Q3: The Environment Agency will monitor directions made by engineers and may contact the engineer to discuss a direction. They may require information from

undertakers which demonstrates how the undertaker has complied with an engineer's direction. Failure to comply with an engineer's direction would be an offence and would have to be investigated.

4 There appears to be a need for a more detailed, peer-reviewed guidance document for Flood Plans (similar to Floods and Reservoir Safety, for example). Is it intended that such a document will be produced?

19 I and I am sure other SEs would appreciate from DEFRA/EA is a suite of templates for the following situations. I know the argument against the above is that each reservoir is different and the requirements should not be prescriptive, but there is a 12 month deadline for preparing or updating the plans and many SEs such as myself are being asked to prepare them for private owners. We need some clear guidance on what is required using proportionality as the key theme!

- For all Flood Category A and B reservoirs (comprehensive-typically 30-40 pages)
- For all Flood Category C and D reservoirs (limited including the absolute minimum info e.g access routes, scour facilities, contact details-say typically 10 pages max.)
- For all Not High Risk reservoirs (absolute minimum info concentrating purely on any infrastructure at risk-say 2-3 pages max).
- Where there is already an On Site plan based on the 2009 DEFRA example, a template listing the additional key information required should be provided.

20 Section 3 of the new Template includes "Risk Assessment of damage and dam failure". I assume this exercise is carried out by the Undertaker with support from others e.g. Police, a Panel Engineer ideally at the ALERT status to establish likely hazards at the standby stage of an incident e.g working over water, risks of injury to site personnel e.g from a collapse of the embankment, and finding ways to mitigate the risk e.g proper PPE equipment, safety harnesses, warning systems, lighting at night, proper command and control procedures etc. Is this correct and would a fairly generic form be considered adequate in the plan with various hazard headings such as working over water, trip hazards, hypothermia?

21 Section 4 of the template includes "e.g ongoing risk assessment and scale of dam failure". At this stage of the emergency and possibly earlier at the ADVISORY status stage when emergency services and Cat 1 responders are on site and the Police are in charge, my understanding is that risk assessments would be carried out by the emergency services and Cat 1 responders both in relation to on site risks and off site risks, not the undertaker, and the emergency services are likely to have their own procedures for doing this exercise. Hazards at this stage are impossible to predict in any detail and the RA will be constantly revised as the situation develops. Thus I am unsure what the on site Plan should say about additional risk assessments at this stage other than recognising the initial RA will be updated by the emergency services according to the identified hazards at the time.

Q4, 19, 20 and 21: The current guidance is intended to support owners and undertakers to create an on-site emergency flood plan, so that undertakers, their staff, engineers and others as appropriate are clear on how to respond if a dam is likely to or actually fails. The ICE publication "Floods and Reservoir Safety" Fourth Edition April 2015 provides detailed technical advice and best practice for engineers and owners on flood protection standards, flood magnitude and freeboard for reservoir design, management and safety. The Environment Agency will keep the guidance for on-site emergency flood plans under review and welcomes feedback and examples of good practice which might be shared.

The initial risk assessment of the reservoir in an emergency is the responsibility of the owner or operator and is focused on the damage to the reservoir dam and how to make it safe. Owners and operators should be prepared to do ongoing risk assessment of the reservoir structures during an incident. See the Environment Agency technical guidance on [Guide to risk assessment for reservoir safety management](#). Where a major incident is declared then the emergency responders will be responsible for assessing risk to local communities, downstream of the reservoir, and will work closely with the reservoir owner/operator and their appointed panel engineer(s).

The ministerial direction sets out the minimum requirements that must be included in all reservoir flood plans. Where a flood plan already exists, you can use the template as a checklist to ensure your plan includes the necessary information.

Certificate

5 Is there a prescribed format for the 'certificate' and/or a process that the Supervising Engineer will need to follow in order to inform the Enforcement Authority of compliance in production, testing and certifying of flood plans? BDS Members pointed out that some template certificates already exist under Section 12AA(3) for Flood Plans in "Guide to the Reservoir Act, 2nd Edition", pg145

23 Under Section 12AA(8) of the Act, if a Flood Plan is revised, then Section 12AA(3) applies and it must be re-certified. However, it does not specify how much of a change is considered a revision. The implication is that even a minor change (such as, the correction or change of a contact phone number) could be considered a revision of the Flood Plan and need recertifying. Is further guidance to be issued to clarify the requirements for re-certifying a Flood Plan?

Q5, Q23: The certificate format for engineers to use is the one included in the Guide to the Reservoirs Act page 145, which comes from The Reservoirs Act 1975 (Capacity, Registration, Prescribed Forms, etc.) (England) Regulations 2013. The certificate should be sent to the undertaker and copied to the Environment Agency.

Certificates are valid for up to 5 years. This is intended to allow for minor revisions/updates in the interim. A change of phone number or the names of key personnel would be considered a minor change. If substantial changes are made to the plan a new certificate would be needed. Examples of substantial changes to the

plan are adding additional risk factors which may trigger the plan, adding new actions to prevent a dam breach. If an engineer has made a direction requiring that a flood plan be revised, a new certificate would be needed once the plan is revised in accordance with that the engineer's direction.

The section 12 annual assessment and written statement by a supervising engineer (which is copied to the Environment Agency) provides opportunity to report on managing a flood plan at the same time. A report might include for example:

- that the plan has been reviewed
- how the flood plan has been tested or exercised, including the routine testing of valves and any faults or repairs needed
- identify any recommendations (for the undertaker) to change regular maintenance work or monitoring as a result of testing a flood plan

6 Please can you clarify who can certify a non-high risk on-site plan. Can a Supervising Panel Engineer carry out that duty?

Q6: On-site emergency flood plans for not high risk reservoirs can be certified by an engineer from any of the government appointed reservoir engineer panels, including the Supervising Engineer Panel.

Not High Risk Reservoirs requiring plans

7 What is the evidence for inclusion of Not High Risk dams in the Direction for preparation and preparation of Flood Plans? Is requiring Flood Plans a proportionate response?

8 Why do non-high risk reservoirs need a flood plan given how cautious the EA has been in designation? If a non-high risk reservoir breaches, no one would be at risk.

9 It was surprising to learn that Non-High-Risk Reservoirs require on-site emergency plans. The justification given during the Q&A after the presentation at the BDS meeting related to potential environmental impact. Can this decision be reviewed? If not, can you please provide guidance for the small reservoir owners concerned, demonstrating that a "minimalist" plan is acceptable and will not require testing?

10 Under the amended Act, the designation of "Not High Risk" for a reservoir removed the need for a Supervising Engineer or Inspecting Engineer. However, the need for a Flood Plan with the associated requirements for the direction of testing and revising Plans, in combination with the frequencies stated in the guidance, appears to have effectively reinstated the "Supervising Engineer" role by stealth. Clarification is required from Defra / EA as regards the expectations for "Not High Risk" reservoirs.

11 I do not understand why these reservoirs are included in the Direction since by definition they present no real risk to persons or infrastructure downstream if they

breach? Can some relaxation for the requirements and deadlines be provided by DEFRA/EA for these reservoirs?

Q7 -11: The Government considers that it is essential that on-site emergency flood plans are in place for all Large Raised Reservoirs in England. If an incident occurs, an on-site flood plan will help achieve a quick and robust response. Even if a reservoir is in a rural area and there is no immediate risk to the public, there could be other impacts from a reservoir failing, such as environmental impacts, damage to crops and farmland, or infrastructure, which could impact the undertaker and the local community.

The ministerial direction sets out the minimum requirements that must be included in all reservoir flood plans. The guidance published with the direction makes it clear that a proportionate approach can be taken for testing a flood plan. Testing a plan as directed by an engineer is a legal requirement and failure to do so would be an offence.

Templates

12 The 2009 example of an on site plan for reservoir dam incidents for a small fishing reservoir does not accurately reflect the new Guidance documents. So I am unclear why the 2009 example is included as part of the latest Guidance.

13 The 2009 DEFRA template for a small reservoir on site plan is 24 pages long. Is this really what we should be using? Please can DEFRA clarify/confirm that the templates are guidance only and Engineers can use their own judgement about how extensive the plans need to be based on the risks posed?

14 The 2009 guidance documents are confusing as, in places, they mix up the requirements for On-Site and Off-site plans (for example, Sections 3 & 4 in the "Small Reservoirs" guidance). More suitable examples based on the latest direction and guidance are required as soon as possible.

15 The 2009 example of an On Site plan for a small reservoir is still of value but I assume the new template is to be followed in preparing new On Site plans. When will a new example for a small reservoir be made available?

16 Where an existing On Site plan is available based on the 2009 example for small reservoirs, is it acceptable to keep the existing version but provide additional Annexes in order to comply with the requirements set out in the new template?

Q12-16: The small reservoirs template will be removed from Gov.UK, as it has been found to be unhelpful. The template for an onsite emergency flood plan is there as a guide and as a check list. Owners and engineers can use this or their own format. Our recommendation is that on-site emergency flood plans are kept focussed and provide a clear set of actions to be taken.

17 Under the new direction what information should we be including for the areas that may be flooded, is it just the flood maps from Resilience Direct?

Q17: The information about areas at risk of flooding needs to be sufficient to inform the assessment needed for drawing down the reservoir, and to enable someone reporting an incident to convey to the emergency responders the areas most at risk. Where plans are held digitally then hyper-links to the relevant map on Gov.UK could be included, showing the extent of possible flooding. While the flood risk maps are key information, local knowledge is also important, so being able to identify any buildings or infrastructure that may be particularly vulnerable will be useful when alerting the emergency services about an incident. The more detailed maps on Resilience Direct are restricted information intended for the emergency responders to use in managing an incident response with local communities and used in conjunction with their Off-site flood plan.

18 The Flood Plan template associated with the Ministerial Direction includes boxes for the review and test of the Plan. However, these are already covered by the Section 12AA(4) and 12AA(7) direction forms contained in SI 2013 No.1677. It would appear more appropriate to include these forms within the Supervising Engineer's Annual Statements. Including copies in the Flood Plan appears to be duplicating work (with the associated risk of errors / contradictions) and the update of them may be considered a revision of the Plan. A response from Defra / EA on this matter will be appreciated.

Q18: The boxes at the beginning of the template are suggested as a reminder of when testing or review of the plan is due. An engineer's direction about testing of the on-site emergency flood plan should be kept as part of the records for the reservoir so it can be referred to as needed for managing the plan, annual assessments and periodic inspections. It does not need to be included in the on-site emergency flood plan itself.

Updating the plan

22 Does the EA and Local Resilience Forum need a new copy of the On Site plan every time changes are made to the plan? It is important that information in the plan is kept up to date, could version control be an issue here?

Q22: Undertakers are required to share their on-site emergency flood plan only on request by the EA or other emergency responders rather than every time a plan is updated. Where a plan is revised following a direction by an engineer then a new certificate would be needed (which would be given to the undertaker and copied to the EA).

Annual testing of the plan

24 What is envisaged as to the extent of an annual desktop test of a plan? As an owner of 59 Statutory Reservoirs this will be over one a week so clarity on extent of the annual test would be welcome.

25 The recently guidance to owners and panel engineers is quite vague when it comes to the requirements for testing a plan. Many smaller owners of reservoirs are

not necessarily as aware of what needs to be done. Is specific, clear guidance to be provided?

Q24 and 25: Due to the individual nature of reservoirs the legal requirement is for on-site emergency flood plans to be tested "at such times and in such a manner as directed by an engineer". The Environment Agency will keep the guidance under review and welcomes feedback and examples of good practice which might be shared.

A desk-based run through of the plan could for example remind staff of the risk factors and circumstances that might trigger the plan, cover the actions to implement the plan and notify the Police and the Environment Agency, cover what increased monitoring would mean in practice and check that all relevant personnel understand their incident response roles. This would be complimented by a site walkover which could be used for example to check access to the reservoir, possible locations for emergency pumps and pipework, practical arrangements for supporting an incident response.

Full testing of the plan

26 What would be considered an adequate 'exercising of a plan' by an Undertaker.

27 The guidance issued with the direction Indicates that a full incident simulation test will know what to do in relation to managing a response with the co-operation of Category 1 responders. However, it is not clear whether Category 1 responders are expected to be involved with a full incident simulation test. Arguably, there will be benefit in Category 1 responders being involved with such tests for the highest risk reservoirs. However, are they likely to have the resources to do this? Is further guidance to be issued as to the expectations for involving Category 1 responders with the testing of Flood Plans?

28 Given the number of reservoirs in England, if "full tests" are required every 5 to 10 years, do the Category 1 responders have sufficient resources to deal with this? Has anyone asked them?

29 Could Defra / Environment Agency provide some clarity on what they would expect in terms of 'testing' the plan and how this would effect certification. It is noted that the type and scale of the test should be proportionate to the risk posed by the reservoir but some further clarity on what would be deemed to be acceptable would be useful. This question should also consider the potential financial issues that small private owners may have if enforced to carry out a full scale test of the off site plan.

30 It would be really useful to have additional guidance on pooling reservoirs and collaboration - even between LAs and independent reservoir owners (?)

31 Given the costs indicated by Ian Hope for the recent Severn Trent test, it is likely that many smaller owners of reservoirs will struggle to fund a "full test" even if this is only once every 10 years. It is not beneficial to bankrupt owners and risk a situation where there is no-one looking after te reservoir. It is likely that the EA would end up

having to use its emergency powers to take on these reservoirs and deal with them. Can Jan Kiernan / Tony Deakin comment on this?

32 The guidance issued with the direction states that the Flood Plan testing requirements vary depending upon whether a reservoir is considered “High Impact” or “Low Impact”. However, these terms are not defined and have no correlation with existing reservoir legislation or guidance. They also do not appear to correlate with the Class 1, 2 & 3 approach proposed in the recent Balmforth report. Is definition of the terms “High Impact” and “Low Impact” to be provided?

33 The testing requirements stated in the guidance appear to penalise smaller owners of individual reservoirs. Whilst larger owners with multiple reservoirs can spread the cost amongst their portfolio, individual owners will incur the full cost for their sole reservoir. Was a cost impact assessment performed before issuing the Ministerial Direction? Is it the intention to potentially bankrupt smaller owners and leave reservoirs without anyone responsible for them? Will any financial assistance be available? Comment from Defra and the EA will be much appreciated on this matter.

34 Section 12AA(4) of the Act states a reservoir must be tested in accordance with the times and manner stipulated by the Appointed Engineer. The guidance associated with the Direction indicates that testing should be proportionate with a reservoir’s type, size and flood risk level. This appears reasonable – a large volume reservoir in the middle of a city poses a much larger emergency response requirements to a relatively small irrigation reservoir in the middle of a sparsely populated, rural area. However, the vagueness of the currently issued guidance is already causing much concern and confusion amongst reservoir Undertakers and Panel Engineers. Is it intended to issue clearer guidance is required as to the expected testing requirements for typical reservoir types?

Q27 -34: The owner or operator of each reservoir must test on-site emergency flood plans. Testing of off-site plans is the responsibility of the Local Resilience Forum (LRF). While it is highly beneficial to test both the on-site and off-site plans together, and we would encourage this, it is not a legal requirement to do so. (The Severn Trent exercise in 2019, which Ian Hope presented, was testing both on-site and off-site plans.)

For the purpose of deciding how frequently an on-site emergency flood plan should be tested, a dam failure could be considered high impact if 10 or more people would be endangered, and, would be low impact if fewer than 10 people are at risk.

The guidance explains that testing an on-site emergency flood plan can range between a desk-based exercise up to a full simulation for the owner/operator which could be done alongside testing an off-site plan. When planning a simulation exercise, it would be reasonable to consult the LRF and invite them to participate or coordinate with an LRF’s own exercise. We have recommended a collaborative

approach to testing flood plans so that costs are kept down and so that learning and experience of incident management and response can be shared. We expect everyone who is responsible for a reservoir to know what to do in a dam breach emergency and to learn about incident response through either holding or attending simulation exercises with others. The Environment Agency will keep the guidance under review and welcomes feedback and examples of good practice which might be shared.

LRF

35 Would Resilience Direct be the best way to keep LRF's up to date? eg a simple notification sent when updates are done

36 To what extent should be included in the on-site plan of the potential downstream flooding as a result of increased drawdown measures if required? Should this be clearly communicated in the plan for the LRF or is it the LRF's responsibility to take the drawdown rates provided and assess the impact in their own flood contingency plan? The drawdown requirement may be met and highest risks (reduced but communities could be flooded as a result of the drawdown that's needed.

Q35 – 36: These sorts of issues should be discussed with the LRFs concerned as to what information they would need. Having drawdown rates and level of downstream impact in a table form in the plan would enable quick and informed decision making with the LRF during an incident response.

Off-site Plans

37 The presentation discusses the legal requirement of the On-Site Plan. What is the legal position of the Off-Site Plans and what is expected of Undertakers where no Off-Site plans exist?

Q37: Local Resilience Forums (LRF) are responsible for local emergency planning, including any required as a result of having reservoirs in their area. It is recommended that the LRFs are consulted when preparing or reviewing an on-site plan. The legal position for off-site plans has not changed. As part of the Civil Contingencies Act 2004, Category 1 Responders, which includes, in England, county and district councils, have a duty to assess an emergency's risk. They should also maintain plans to ensure that, if an emergency occurs, their functions can be performed to reduce, control, or mitigating its effects.

Availability of flood maps

40 I understand these maps have already been sent to Resilience Forums and should be available for including in the Plans "in the summer". Can we have a clearer idea of when they will be available and if they cover all large raised reservoirs in England. Could they be prioritised so that Flood Category A and B reservoirs are made available in the next few weeks?

Q40: Flood risk maps showing the possible extent of flooding from a reservoir are already available on Gov.UK and can be used for on-site emergency flood plans.

Some technical issues have been found which is slightly delaying the new flood risk maps being available on Gov.UK. These maps will be updated over the summer and the Environment Agency will let people know when they are available. The new maps for the emergency responders to use with their off-site plans are already in Resilience Direct.

Availability of equipment

41 As noted in Table 2.2 of the EA Guide to Drawdown Capacity, large pumps owned by the EA "can be made available to other emergency services during a flood or reservoir emergency". Can the EA please confirm this is still the case (depending of course on availability at the time) and if so how they are to be obtained and brought to site.

Q41: It is the responsibility of the owner or operator to obtain the necessary equipment and materials to manage the incident. In an emergency the EA may be able to offer equipment if available. Arrangements to bring EA equipment on site would be made at the time with the EA's incident response co-ordinator. The EA may charge the owner or operator the cost of exercising its emergency powers under section 16 of the Reservoirs Act.

Small Reservoirs

38 Will reservoirs that are less than 25ML (less than that of Res Act) required on site plan?

39 If the threshold for registration is lowered below 25,000 m³ will the Direction for Flood Plans apply to those (as it stands it must do)?

Q38, 39: It remains good practice for owners of small raised reservoirs to have on-site emergency flood plans. No decisions have been made yet about reducing the 25,000m³ threshold but if/when this happens it is likely that any reservoirs between 10,000m³ and 25,000m³ which are considered high risk would need to have emergency plans and a direction would be made.