



# West Lothian Council

## COUNCIL EXECUTIVE

### CONSULTATION ON A RISK-BASED RESERVOIR SAFETY REGIME FOR SCOTLAND

#### REPORT BY HEAD OF OPERATIONAL SERVICES.

##### **A. PURPOSE OF REPORT**

To advise the Council Executive of the Scottish Government's consultation on a risk-based reservoir safety regime for Scotland and to seek approval for the response to the consultation.

##### **B. RECOMMENDATION**

To note that the Scottish Government has consulted the council on its proposals to introduce a risk-based reservoir safety regime for Scotland and has invited responses from the council in both its current capacity as enforcement authority under the Reservoirs Act 1975 and as the owner and operator of two reservoirs.

To note that, due to time constraints, this report has only been the subject of a verbal report to the Environment PDSP.

To approve the response prepared by officers in response to the consultation and authorise its submission on behalf of the council.

##### **C. SUMMARY OF IMPLICATIONS**

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|---|--|
| <b>I Council Values</b>   | Focusing on our customer's needs;<br>being honest, open and accountable;<br>making best use of our resources; and<br>working in partnership.   |
| <b>II Policy and Legal (including Strategic Environmental Assessment, Equality Issues, Health or Risk Assessment)</b> | Reservoirs Act 1975<br>Flood Risk Management (Scotland) Act 2009   |
| <b>III Resources - (Financial, Staffing and Property)</b>   | The proposed risk-based approach to reservoir safety in Scotland might have revenue implications for the Country Parks team who manage both Beecraigs and Eliburn Reservoirs on a day-to-day basis. The extent of this pressure cannot be determined until the legislation is commenced and SEPA undertake |

their assessment of risk.

#### **IV Consultations**

Country Parks Manager

Emergency Planning Officer

### **D. TERMS OF REPORT**

#### **1.0 Introduction**

- 1.1** Part 7 of the Flood Risk Management (Scotland) Act 2009 transfers the enforcement responsibility for the Reservoirs Act 1975 from local authorities to SEPA. This part of the Act has not yet been commenced.
- 1.2** The Scottish Government, through its consultation document, 'A Risk-Based Reservoir Safety Regime for Scotland', is seeking views from stakeholders, including the council, in its current capacity as enforcement authority under the Reservoirs Act 1975 and as the owner of Beecraigs and Eliburn Reservoirs. It is proposed to repeal and replace the Reservoirs Act 1975 through primary legislation.
- 1.3** Feedback was invited in the form of responses to a series of thirty-two pre-determined questions throughout the document. Appendix 1 (attached) details the questions and the response to each by officers. The council's response has to be submitted to the Scottish Government by 18 April 2010.

#### **2.0 The Reservoirs Act 1975**

- 2.1** The Reservoirs Act 1975 established an administrative structure to manage particular types of reservoirs, whether constructed or planned, aimed at minimising the risk of dams failure the potential damage and loss of life, which could result. The legislation was originally introduced in the 1930s following a number of very serious structural failures, which resulted in loss of life. The 1975 Act provides for a regime of statutory inspections and recommendations in relation to reservoirs and works on reservoirs and determines the functions and responsibilities of those carrying out inspections and works. Local authorities are currently the enforcement authorities in Scotland under the 1975 Act.
- 2.2** Since its introduction, the legislation appears to have been successful in protecting persons or property against an uncontrolled escape of water from reservoirs in the UK. However, to improve efficiency and ensure a consistent approach and with the general agreement of stakeholders, the enforcement responsibilities are being transferred from local authorities to SEPA by the Flood Risk Management (Scotland) Act 2009. Officers have previously been consulted on this and were supportive of the principles.

#### **3.0 The Flood Risk Management (Scotland) Act 2009**

- 3.1** Part 7 of the Flood Risk Management (Scotland) Act 2009 gives the enforcement authorities the power to serve and enforce notices which requires undertakers to take measures in the interests of safety. The 2009 Act also introduced new enabling powers. This enables the Scottish Government to put in place incident reporting regulations and require reservoir undertakers (those that operate reservoirs) to prepare on-site flood plans. This part of the Act has not yet been commenced.

**3.2** The 2009 Act, the Reservoirs Act 1975 is amended to provide for the duties and powers given to local authorities. This excludes except those relevant to local authorities' functions as reservoir undertakers (The council is the Undertaker for Becaigs Reservoir) to be transferred to SEPA. These provisions will be taken forward into the new Act. The transfer of responsibility for enforcement of the 1975 Act will ensure a uniform and efficient application of legislative powers throughout Scotland. In future, SEPA will have full responsibility for the following:

- to maintain a register of reservoirs (and making this information available to the public);
- ensure that the Undertaker has appointed a Supervising Engineer;
- ensure that the Undertaker commissions regular inspections of the dam by an Inspecting Engineer;
- enforce the 1975 Act by influencing, warning, cautioning and ultimately prosecuting non-compliant Undertakers;
- commission essential works required in the 'Interests of Safety' in the event of non-compliance and recouping full costs incurred from the Undertaker;
- ensure that the Controlled Activities Regulations licensing requirements and similar regulation of the impact of works are considered;
- produce a Biennial Report for submission to the Scottish Government;
- record and cataloguing detail and specifics of any incidents, to provide a post-incident reporting regime; and
- act in an emergency if the Undertaker cannot be found or identified.

**3.3** The Scottish Government proposes to repeal and replace the Reservoirs Act 1975 through primary legislation, with the key focus on:

- Modernising the legislation covering reservoir safety; and
- Minimising the risk of flooding from reservoirs by introducing a proportionate, targeted and risk-based approach to reservoir safety.

The 1975 Act currently only applies to Large Raised Reservoirs which hold, or are capable of holding, more than 25,000 cubic metres of water above the natural level of any part of the land adjoining the reservoir. The Scottish Government is seeking to implement the following changes:

- a new requirement that all reservoirs which hold, or are capable of holding a new minimum volume capacity (10,000 cubic metres) of water above the natural level of any part of the land adjoining the reservoir to be included on a SEPA register;
- require SEPA to classify each reservoir according to whether it poses a significant threat to human life, property and critical infrastructure, or meets technical conditions (to be specified);
- specify the duties of reservoir undertakers; and  
specify the duties if Institution of Civil Engineers, All Reservoirs Panel Engineers in relation to those reservoirs based on the level of risk.

- 3.4** Reservoirs which have a capacity of less than 25,000 cubic metres can present similar dangers to people living immediately downstream as those posed by large raised reservoirs. In addition, some large reservoirs, which are in remote rural areas, may pose little danger to life or property. The Scottish Government is therefore proposing, subject to consultation, to include all reservoirs above a new minimum capacity of 10,000 cubic metres, which have the potential to present a danger to downstream populations within a new regime.

It is also proposed that there should be scope for SEPA, as the new enforcement authority, to include reservoirs below the new minimum capacity should significant risks become apparent, or for Scottish Ministers to raise the minimum capacity if, in future, it appears too low.

- 3.5** The 2009 FRMS Act has also inserted provisions into the 1975 Act, which allow the Scottish Government to make regulations, which require reservoir undertakers to produce on-site flood plans. These plans will set out the on-site steps, which an operator will take in the event of a potential or imminent uncontrolled release of water from a reservoir.

#### **4.0 The implications**

- 4.1** It is proposed that the regulations will define the categories of a reservoir as a low, medium and high-risk reservoirs. These categories will be aligned with the categories determined under the 2009 Act and the proposed new reservoir safety legislation, which will change the reservoir safety regime to a risk-based approach.
- 4.2** The categories should be based on the impact which an uncontrolled escapes of water would have on downstream populations, property and critical infrastructure taking into account other factors such as volume, type of dam structure, incident records and advice from engineers. The proposed categories are set out below:
- minimum risk of damage to property downstream – Low-Risk
  - a moderate risk of damage to property and infrastructure downstream – Moderate-Risk
  - the risk to life and/or significant risk to property and critical infrastructure downstream – High-Risk.
- 4.3** In England and Wales, the Environment Agency has produced simple inundation maps for every reservoir currently regulated under the 1975 Act. Views are being sought on whether a similar exercise would be welcomed in Scotland. These simple inundation maps would not replace the more detailed maps required to support the high-risk plans, but would provide sufficient information in a standardised form which will aid the classification of high, medium and low-risk reservoirs following registration.
- 4.4** Reservoir undertakers include private individuals, small and medium sized businesses (such as fishing clubs and sporting estates) and private larger companies (such as utilities). For reservoir undertakers, costs will be incurred in the preparation of 'on-site reservoir plans'. As the proposals are risk-based, the costs incurred would also be scaled against the risk associated with a particular reservoir.

- 4.5** Section 11 of the Reservoirs Act 1975 requires undertakers to keep a record of information on changes in water levels, overflow levels, leakages; settlement of walls, repairs carried out and such other matters as may be prescribed. The 2009 Act extended this section by inserting provisions, which enable the Scottish Government to make regulations to introduce a system of post-incident reporting that includes such information as deemed appropriate following an incident. This aims to allow common causes and responses to be identified to strengthen the understanding and knowledge of any incidents that may occur. It is proposed that the regulations will set out the criteria, which should determine whether an incident should be reported, and the penalties for not reporting an incident.
- 4.6** The principle of the existing legislation has been largely supported to date and it is considered important to review this, particularly in the context of the changing dynamics of reservoir ownership, the impact of these dynamics on long-term maintenance and day-to-day supervision, climate change and the ageing nature of the infrastructure.

Officers are supportive of the proposed requirement for reservoir undertakers to produce on-site flood plans. It considers the risk-based approach to be well reasoned in the context of the impact of an uncontrolled release of water from these structures. The proposed approach to align reservoir safety legislation with the existing licensing arrangements administered by SEPA is interesting. It may also serve to heighten awareness of reservoir safety, a move strongly supported by officers.

- 4.7** If SEPA determines, on closer examination, that either of these council owned reservoirs present a greater risk than has been assumed, then this would result in a revenue cost pressure.

There are also wider concerns that the proposals appear to shift the cost of regulation, currently met from general taxation and council tax, to those operating reservoirs that also have the burden and extended costs of compliance. Given the changing dynamics of reservoir ownership in favour of small businesses such as a fisheries and for shooting, this is not regarded as sustainable, particularly in the current economic climate.

## **E. CONCLUSION**

Part 7 of the Flood Risk Management Scotland Act 2009 transfers the enforcement responsibility for the 1975 Act from local authorities to SEPA. This part of the Act has not yet been commenced.

The Scottish Government, through its consultation document, 'A Risk-Based Reservoir Safety Regime for Scotland', is seeking views from stakeholders, including the council.

The reasoning behind the placing of new duties on operators of Large Raised Reservoirs is acknowledged. There is also a well-reasoned argument in favour of extending the rules to include certain structures of a lesser capacity where these may present a risk to those living downstream.

There are wider concerns that the proposals appear to shift the cost of regulation, currently met from general taxation and council tax, to those operating reservoirs that also have the burden and costs of compliance. Given the changing dynamics of reservoir ownership in favour of small businesses such as a fisheries and shooting, this is not regarded as sustainable, particularly in the current economic climate. It is hoped that the Scottish Government will be sensitive to these impacts.

In the absence of SEPA's determination of the risks presented by the two reservoirs in the council's ownership a moderate to low risk rating is anticipated. If SEPA later determine, on closer examination, that either of these structures present a greater risk than has been assumed, then this would present a revenue cost pressure to the council.

## **F. BACKGROUND REFERENCES**

The Register of Large Raised Reservoirs (Revised 2009)  
Report to Scottish Ministers under the Reservoirs Act 1975  
Report to the Council Executive on the Flood Risk Management (Scotland) Bill 2009, 23 April 2009  
Reservoir Safety in Scotland - A Response by West Lothian Council  
Verbal report (draft tabled) to Environment Policy Development & Scrutiny Panel 11 March 2010

**Appendices/Attachments:** Appendix 1 Response to the Scottish Government's Consultation on A risk-Based Reservoir Safety Regime for Scotland

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## Response to the Scottish Government's Consultation on Reservoir Safety in Scotland

### Introduction

West Lothian Council has a number of Large Raised Reservoirs in its area and several reservoirs, which fall outwith the ambit of the existing legislation by virtue of them having a lesser capacity.

The council supports the principle of the existing legislation and considers it important to review this, particularly in the context of the changing dynamics of reservoir ownership, the impact of these dynamics on long-term maintenance and day-to-day supervision, climate change and the ageing nature of the infrastructure.

The council is supportive of the proposed requirement for reservoir undertakers to produce on-site flood plans. It considers the risk-based approach to be well reasoned in the context of the impact of an uncontrolled release of water from these structures.

The proposed approach to align reservoir safety legislation with the CAR licensing arrangements is interesting and may also serve to raise the profile of reservoir safety, a move strongly supported by the council. The council does not accept the suggestion that regulation is being reduced for many reservoir undertakers.

### **Q1. What should the criteria be for determining whether a reservoir requires preparation of a flood plan?**

A flood plan should be prepared for all bodies of water held artificially natural ground level. This is consistent with the requirements being placed on local authorities and others to prepare Local flood Risk Management Plans. In addition to preparing for potential dam failure, it is suggested that preparation be made for situation where the capacity of the reservoir is exceeded and there was surcharging over fixed structures. Such a situation occurred at the Bangour Reservoir near Broxburn in August 2008 caused by locally prolonged and intense rainfall following an extended period of wet weather, which had saturated the ground in the catchment. The extent of potential collateral damage and scope for loss of life must be a determinant.

### **Q2. Should there be different levels of flood plans for high, medium and low risk reservoirs? If not, what alternative system should be adopted?**

Yes. This appears to be a reasoned approach.

### **Q3. If the 3 different categories are used, what information should be included in a flood plan for each of them?**

The risk categories suggested appear acceptable but the assessments should be undertaken regularly and the risks downstream properly reassessed on each occasion.

All flood plans must, as a minimum, include an accurate representation of infrastructure that would potentially be at risk downstream, the sensitivity of these receptors and the economic, social and environmental implications of inundation.

The issue of risk needs to be considered carefully. One house in the inundation zone and affected by an incident could result in one or more fatalities. There is doubt that such a scenario should be considered low risk for example. Low risk should be minimal infrastructure in the affected zone. The greater the extent of downstream infrastructure, the greater the risk of injury or death.

Moderate and high risk infrastructure warrants inclusion of plans showing access points to the body of water and access around it, the permanent apparatus in place to lower the retained water levels and plans showing the location of these and the whereabouts of keys for the emergency services.

Once risk is identified, careful consideration will need to be given to the potential impact on development potential within the inundation zone and how this should be handled by planning authorities.

All plans should provide a simple, guided approach to dealing with an on-site incident event when the effects may also be off site.

**Q4. Should all flood plans include an inundation map?**

Yes. These are the product of the assessment process anyway. The council supports the principle of simple plans for low to moderate risk structures and more detailed plans for those structures that present the greatest risk.

**Q5. Should SEPA prepare basic inundation maps for all reservoirs over 10,000 cubic metres?**

Yes. It is desirable that there is some consistency with the situation in England & Wales where the Environment Agency has prepared simple plans. The need for plans should, however, be restricted to water held artificially above natural ground level. 10,000 cubic metres however, is an arbitrary volume however. Risk has as much to do with location, head and velocity than volume alone. Risk may be posed by rainfall exceeding the capacity of the structure as assumed failure. The latter has no bearing on permanent capacity.

Determining the volume of a reservoir can be difficult in the absence of construction drawings or a plumbed depth survey. Many reservoir undertakers no longer have the construction drawings for their reservoir.

**Q6. How often should plans be reviewed and updated?**

Review should fall in line with the six-year review of Local Flood Risk Management Plans except where there is a significant development proposed within an inundation zone.

**Q7. How often should plans be tested?**

There is some uncertainty as to what is meant by testing. The plans should certainly be available to the local authority emergency planning officer and other emergency services. It would be good practice for reservoir failure to form part of the range of training exercises undertaken by these bodies. The testing of plans should precede their review.

**Q8. Should Panel engineers have a role in the preparation, testing and approval of flood plans? If so, what should their role be?**

The Panel Inspecting Engineer should have a role in checking the robustness of plans and ensuring that they remain relevant. The role should extend to signing these off as part of the existing inspection certification or by means of a further certificate. Panel Engineers should have a specific advisory role.



**Q9. Should the Scottish Government provide financial assistance towards the preparation of reservoir flood plans in order to assist smaller private businesses and individuals to comply with new legislation?**

The Government needs to be mindful of the economic viability of some reservoir undertakers can easily be undermined by additional financial burdens. To this end the council would support any package of financial help provided to reservoir undertakers by the Scottish Government. Such help should not be limited to private owners and operators.

The council understands the very serious economic conditions faced by the public sector and suggests that better overall value for money might be realised by providing quality guidance for undertakers, refining the specification for the work required, including registration, and create a framework contract to optimise competition between appropriate consultants and provide an economy of scale which reservoir undertakers could take advantage of.

**Q10. Who should have access to on site flood plans?**

The reservoir undertaker, SEPA, the local authority Emergency Planning Officer, the emergency services, SEPA and the appointed Panel Engineer.

It is noted that the plans outline the steps, which an operator would be required to take. It is quite conceivable that the operator might be off site and that these steps may require to be taken by the local civil or emergency services.

There is a view that these plans should be available to view to interested parties on the Internet.

**Q11. Who should have access to inundation maps?**

These should become public information and should be integrated with Local Flood Risk Management Plans and available to view on the Internet.

**Monitoring and Supervision - Incident reporting**

**Q12. Do you agree that the criteria proposed are the correct criteria for determining whether an incident should be reported? If not, please suggest the criteria which should be used and why.**

It is suggested that the criteria be kept simple by describing the incidents, which need to be reported. The incidents outlined in criteria 1 & 2 are robust. The third is considered too vague. Care should be taken to minimise the risk of incidents being interpreted by undertakers as inconsequential.

**Q13. What information should be provided in the report?**

The name and address of the reservoir undertaker should also be included in addition to the information suggested. There are concerns that some of the information being sought may assume a level of knowledge beyond that of some reservoir undertakers.

The council wishes to highlight that keepers now manage very few reservoirs. A good deal of information is logged remotely. Serious incidents could therefore take some time to be noticed and it is possible in some instances that members of the public might have in some part of the reporting process.

**Q14. Who should be made responsible for reporting the incident?**

The reservoir undertaker must be ultimately responsible for reporting the incident. He / she may not involve Inspecting Engineers or the authorities and so what is reported should be

within their capability to describe. The Engineer should have a role in the event that he becomes aware of an incident that doesn't appear to have been reported

Consideration should be given to how members of the public and the Police might contact reservoir undertakers in the event that an incident should come to their attention first.

**Q15. Do you agree that the minimum volume figure should be 10,000 cubic metres, or another figure?**

10,000 cubic metres however, is an arbitrary volume. Risk has as much to do with location, head, velocity and the sensitivity of receptors than volume alone. Risk may be posed by rainfall exceeding the capacity of the structure as assumed failure. The latter has no bearing on permanent capacity.

**Q16. Do you agree that the criteria for inclusion and/or exclusion can be based on other objective criteria such as embankment height, elevation, type of construction etc?**

Yes, all of these.

**Q17. What information should be requested at the point of registration to enable an effective risk-based approach?**

The information currently held in the Register by local authorities could be used to contribute to the risk-based approach but a site visit by SEPA specialists is considered advisable.

**Q18. How can we design the registration process to minimise the burdens imposed by registration?**

Provide quality guidance for reservoir undertakers, refining the specification for the work required, including registration, and create a framework contract to optimise competition between appropriate consultants and provide a scale of economy which undertakers could take advantage of.

Ensure that the process is also web-based for those that can do it this way.

**Q19. Do you agree with the proposed risk-based classification for reservoirs? If not, what basis do you think risk should be defined on?**

The proposed risk-based classification appears well reasoned. Even lower risk structures should include simple inundation plans with flow routing, ideally prepared by SEPA.

**Q20. Do you consider that particular categories or types of reservoirs should be exempt from the proposed regulatory regime? If so, what are the categories or types and why?**

Reservoirs and bodies of water not held artificially above natural ground levels would appear to present a significantly reduced risk of flooding and or sudden failure.

**Q21. How can the financial burdens on owners of reservoirs, which are being brought into the regulatory regime for the first time be minimised?**

The new regime must be introduced slowly and with a generous period of notice. The Scottish Government should provide quality guidance for undertakers, refining the specification for the work required, including registration, and create a framework contract to optimise competition between appropriate consultants providing a scale of economy which undertakers could take advantage of.

The council is concerned by the proposal to charge for regulation as this represents a departure established practice. Compliance is already a significant burden for operators and will increase in many instances because risk downstream of the structure has increased substantially through no fault of the reservoir undertaker.

**Q22. Should there be a flat rate charge for registration or should the charge be proportionate to the risk/consequence of an uncontrolled release of water from the reservoir?**

Registration should be free of charge. There ought to be a financial penalty for failing to register within a reasonable pre-determined period.

**Q23. Should registration be free for an initial period to encourage new sites to register?**

Yes, as above.

**Q24. Should existing reservoirs have to be re-registered?**

No. A body of information is already held and will need to be transferred to SEPA from local authorities.

**Q25. Should SEPA's on-going enforcement costs be recovered through subsistence fees and should they be on a sliding scale?**

The cost of regulation is currently met from general taxation and council tax. The council is concerned at the prospect of reservoir undertakers having to meet the cost of regulation as well as the costs of increased compliance. This is not regarded as sustainable or fair given the difficult prevailing economic conditions facing all sectors.

**Q26. Should SEPA be able to reclaim the costs of emergency works from the undertaker for measures taken in the interests of public safety?**

The number of occasions where the regulator needs to intervene in this way should be minimal but might well increase over time given the changing dynamics of reservoir ownership and the age / condition of the structures and the maintenance regimes or lack of them that are in place. It is only right that the relevant reservoir undertaker meets the cost of personal or corporate failure. However, it is anticipated that the circumstances when such intervention will be necessary will relate to individuals with insufficient capital and recovery might be challenging and controversial.

In developing the legislation, the Scottish Government needs to be mindful of the economically delicate nature of some of the businesses, which are responsible for reservoirs and reservoir safety. There are limited commercial gains to be made from fishing and other reservoir-based activities.

Where landowners are not the reservoir undertakers, responsibility for the reservoir and compliance with reservoir safety legislation is often included in leases to others. The council considers this an unfair burden given the level of investment that might on occasions be needed in the interest of safety.

**Q27. Which is your preferred implementation model & why?**

The council is supportive of a risk-based approach and considers the existing reliance on independent All-Reservoirs Panel Engineers worthwhile. There are concerns about a licensing system that passes the cost of regulation onto operators of reservoirs. Consequently, Option 2 is the council's preferred model.

**Q28. Are there any elements of the other models that could usefully be included into your preferred model?**

Although there are reservations about the administrative and cost burdens presented by licensing under the WEWS Controlled Activities Regulations, the concept is interesting. It is worth considering if this could somehow be aligned with Option 2 so that the license is issued by SEPA on receipt of the necessary certificates from the Panel Engineer. This

could serve to heighten awareness of reservoir safety. The failure to secure a license could be a criminal offence with a substantial fine.

**Q29 Do you think that another approach not outlined here would deliver reservoir safety more efficiently, please provide details of the approach and how it will deliver reservoir safety?**

All the options appear to have been considered. There may be scope for combining some elements from different options to create a hybrid.

**Q30. Do you agree with the proposed approach of creating panels of Engineers?**

Yes, but it would seem wiser to have one panel serving the whole of the UK as some English-based Engineers for example also do work in Scotland.

**Q31. What lesson can be learned from the current appointment process of Panel Engineers?**

The existing system is a little disjointed. It has also been found to be in conflict with modern procurement practice for example as these are individual appointments rather than appointments with firms of consultants. This could be improved.

**Q32. Do you agree with each of the proposed minor amendments?**

- **The proposed changes to reporting requirements?**
- **The proposed requirement to erect notice boards**

Yes, the amendments are well reasoned and sensible. The council's experience suggests that these things happened anyway.

Whilst the information contained within the notice board should be prescribed, the size, style and appearance should not be prescribed to ensure a best fit in Local Nature Reserves, Country Parks, and National Parks etc.

Consideration needs to be given as to the number of signs and their location where very large reservoirs with multiple access points are concerned.