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Meeting Report

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Meeting Report: The 2017 Supervising Engineers' Forum

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The 2017 Supervising Engineers' Forum was held at the National Motorcycle Museum and NCC, Birmingham, on 27 April 2017 (Figure 1). The Forum covered the following topics: Experience of New Legislation in Practice; Incidents and Exercising of On-site Plans; Assessment, Maintenance and Repairs and an Open Forum.

The Forum started at 9.45 a.m., following registration and morning coffee. The Forum opened with a welcome speech from the recently appointed BDS Chair Tracey Williamson who immediately thanked the outgoing Chair Dr Andy Hughes for his tireless hard work over the last 2 years. After thanking the rest of the BDS Committee, a special thanks was given to Sam Tudor, who has just completed the inaugural period as Chair of the Under 35s committee.

The first session was mainly concerned with reservoir classification, efficiently run by Rachel Pether. The experience of the new legislation in practice in Wales, England and Scotland and reservoir classification under these new regulations were discussed.

First, a whistle-stop tour of reservoirs in Wales was conducted by Matt O'Brien of Natural Resources Wales. This

presentation followed on from that given at last year's BDS conference and went through the facts and statistics of reservoir registration in Wales. Next up was Brian Patten of the Environment Agency (EA). Brian who provided a talk on the benefits of questioning the reservoir categories as considered by the EA, so far, there had been no reductions in category and one has actually gone up from medium to high. Colleen Kennedy of Scottish Environment Protection Agency was next up highlighting the outcome from the questioning categories in Scotland. Even when risk assessment was used to back up the appeal, the likelihood of a classification being reduced was slim. Colleen went on to discuss the progress made in Scotland in categorising dams and advising owners of their responsibilities. Robert Mann then presented a paper which showed that a probability matrix could be generated to check categorisations. The paper showed the categories issued were broad and the creation of the matrix was a very difficult and complex task.

The second session looked at incidents and exercises. First up we had Andrew Ross of Scottish Canals. Andrew talked about the 2015 breach of the Cullochry weir on the Caledonian Canal and the repair work required to reinstate. The subject combined preserving the 200-year old construction while meeting the twenty-first century requirements for safety and recreation.



Figure 1. A photo of the forum

It also covered the forensic work in tracing why the breach occurred. This could have implications for other structures in Scottish canals ownership.

Following on from the weir repair we had an account of potential failure of a small earth embankment in Dovers Corner Flood Storage Area from Jon Holland of Stillwater Associates (from his time at CH2M). The works were severely constrained with environmental issues and a low key, manual approach was required to preserve the integrity of the embankment. Using low impact plant and raw human power, the embankment was repaired and stabilised. This incident showed the need to marry the repair with the scale of the problem and to think outside the box.

This was followed by Yorkshire Water's bid to show how emergency response could be managed on a budget. A detailed account of the scenario and how it took place on site was given. Successes and failures were both shown with a true picture of what may occur in a real incident portrayed. At the demurely named Brownhill reservoir, Operation Cannonball took place. The incident would involve a desktop exercise based over five council areas, with both onsite and offsite plans to be exercised. I personally could relate to the presentation and it shows the need for us all to contribute to emergency response exercises. The need for information from the public to be sent to the correct team came across as the strongest message.

Dougie Armour of Mott MacDonald completed the Second Session (that was ably chaired by David Neeve). His talk centred on incident management with private reservoir owners. Dougie went through two incidents with different owners. The first was a near miss for overtopping and raised the issue of owners not fully understanding their responsibilities. Even Dougie's role as a supervising engineer was not clear in the mind of the owners. The second incident was a spillway failure in a remote 4 m high embankment dam. During Storm Frank on Hogmanay 2015, an estimated 1 in 150-year flood event was experienced at the reservoir. Unfortunately, the reservoir was not checked at the time: there was later found to have been substantial damage to the spillway. The private owners were again confused about the role of the supervising engineer and although the reaction was quick, the time from damage to inspection was too long. The positive outcome from both incidents is that the private owners now fully understand their responsibilities and the need for better supervision and communication.

After an impressive lunch and a chance to look around the exhibition in the adjacent hall, the third session took place. Richard Grierson chaired the session which covered assessment, maintenance and repairs. The enviable position of first after lunch fell to Steve Crooks of SSE. He described in precise the technical details of the repairs undertaken to a 15 t

needle valve in the remote north of Scotland. The initial refurbishment of the valve had noted severe cracking to the internal structure of the valve. The valve which is the main scour point of the dam was patched together and replaced until a more permanent solution was found. SSE investigated getting the internal parts of the valve recast and found that this would produce a real saving of this seldom used valve. It also demonstrates the advantages of using traditional heavy industry to repair large valves rather than choosing a new product. The techniques used will ensure that the new casting was not only as good as the original, but could also meet new NDT requirements.

Second in this session was James Stoner of Stonbury, discussing concrete repairs in service reservoirs. The message again was not just to discard the old structures, but with a reasonable amount of professional ability and the right construction partner, the existing structures can be brought up to modern standards and cost savings can be made.

Sam Tudor of Dŵr Cymru Welsh Water (DCWW) then presented a paper on pipes in dams and highlighted the need for asset management to complete the loop from inspections to become actual funded projects. An inspection needs to feed into a cycle where findings are funded and actioned. DCWW decided that a condition-based asset management would be their chosen route, and set about highlighting assets with the most immediate need for refurbishment. They employed Atkins and Mott MacDonald to assist in this undertaking and produced a fully working system. They consider that they can now be assured of spending the correct amount of maintenance in the right areas.

John Foster of Mott MacDonald Bentley provided the conclusion to the third session with a talk on masonry spillway condition assessment. A topic of immediate interest with prominent failures in the news, John gave an expert guide starting with detailing the types of survey needed and investigating the history of construction. He went on to look at the Guidance for the Design and Maintenance of Stepped Masonry Spillways (2010) issued by the EA. John then ran through the benefits of the ground-penetrating radar to assess the condition of the spillway and other more intrusive tests including removal of sections and pull-out tests before the final stage, hydraulic modelling is undertaken.

The technical sessions were then complete and the Open Forum session started at 3 p.m. sharp. Chaired by Alan Warren, Rachel Pether of B&V, it kicked off with a brief overview of the new application form for supervising engineer application discussing the intention of the form and the steps that should be followed for successful completion. David Littlemore then presented the facts and figures on succession planning for

inspecting engineers. The view was expressed that action needs to be taken to secure the future and this paper provides options to address these issues. The final paper discussed the contentious issue of trees on dams. Intended to provoke discussion, this paper aims at highlighting the issues to allow reservoir owners to formulate their own plans and not to ignore the issue. The Open Forum allowed a discussion to be opened to the floor on these and other topics, with Alan providing effective control of any potentially contentious issues.

A very successful SE Forum was brought to a close by our Chair, with thanks to all those who had delivered their papers.

The lively question and answer sections were again a highlight of the day, showing again the sense of ownership the SEs and other attendees have in the Forum. Record numbers have attended in 2017 and the feedback received during and after the event was very positive.

Special thanks was also given to the organisers whose hard work had resulted in another valuable learning day.

REFERENCE

Defra (Department for Environment Food and Rural Affairs) (2010)
*Guidance for the Design and Maintenance of Stepped Masonry
Spillways*. Environmental Agency, Bristol, UK.

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