

Managing Historical Legacies – Gwydyr Reservoirs

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On 1st April 2016, the reduced threshold, at which a Large Raised Reservoir can be designated in Wales, of 10,000m³ came into force. Under the previous regulatory threshold of 25,000m³, Natural Resources Wales (NRW) was the undertaker for 7 reservoirs. The new threshold increased this to 45 reservoirs, many of which were former mining dams in remote locations that had suffered from little or no maintenance for decades.

The paper will discuss:

- The programme of identification of reservoirs with capacity 10,000m³-25,000m³
- Investigations and developing a programme of remedial works for the new portfolio of assets
- Emergency works
- Case study of the design, construction and ongoing supervision of 3 reservoirs in the Gwydyr Forest including heritage, recreation and environmental considerations
- Developing resilience within a new Organisational Structure
- A timeline of the above process

Discontinuance of legacy Dams- Natural Resources Wales

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On 1st April 2016, the reduced threshold, at which a Large Raised Reservoir can be designated in Wales, of 10,000m³ came into force. This has instigated a programme of works to deal with MIOS issues on a range of assets.

The paper will discuss:

- The actions undertaken at four specific reservoirs where discontinuance has been instigated. these sites being Ratcoed, Lynn Llaeron, Rhiw Bach and Llyn Sarnau. All of these sites were located in remote, difficult to access locations.
- The designs for each of the sites
- The environmental and other constraints on each of the sites
- Construction issues on each of the sites.

BDS Bi-Annual Conference 2020 – Ten Acre Reservoir Discontinuance Case Study

J Toulson, Mott MacDonald Bentley

Ten Acre Reservoir has recently been discontinued and is no longer enforceable under the Reservoirs Act 1975. The discontinuance included excavating a v-notch in the dam, placing the material on the downstream face and constructing a new stone lined channel to the downstream watercourse. The paper will outline the reasons for discontinuing the reservoir, the environmental and design considerations of the scheme and the construction process. The lessons learnt on the scheme will also be discussed.

Stillorgan Reservoirs – Maintaining Stability During Decommissioning And For New Construction

S Battye, Atkins

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Stillorgan reservoir comprises a series of open reservoirs which store approximately 400 – 450 ML of treated drinking water. Operated by Dublin City Council on behalf of Irish Water, the reservoir comprises three discrete cells; the Gray, Upper and Lower reservoirs built between 1862 and 1885. In order to ensure a secure supply of drinking water to south Dublin, Irish Water plan to replace the Stillorgan reservoirs with a single new 160 ML covered reservoir constructed within the larger basin of Gray reservoir. Murphy International Ltd. (Murphy) were appointed by Irish Water to design and construct the new covered reservoir whilst Atkins Ltd. (Atkins) were engaged by Murphy to act as the Independent Geotechnical Engineer – carrying out assessments of the shared Gray/Upper reservoir embankment during construction. The paper will discuss the analysis and methodology used during construction to safely and completely drawdown Gray reservoir, for the first time since its construction, whilst both Upper and Lower reservoirs remained operational. This shall include the interpretation and validation of piezometric data with previous drawdown records and reservoir levels. Stability modelling of the shared embankment between Gray and Upper reservoirs was undertaken to establish initial safe drawdown rates and to manage embankment stability until drawdown was completed. Once the reservoir was emptied, vibration monitoring and surface markers were installed to monitor the embankment during preparation of the basin (including rock breaking) and during construction of the service reservoir.