



RE: CH0009 - RCC Dam

Brian Forbes

to:

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08/26/2015 02:55 AM

Cc:

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From: Brian Forbes <Brian.Forbes@ghd.com>

To: "GregSnyder@lowerchurchillproject.ca" <GregSnyder@lowerchurchillproject.ca>,

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#### 5 Attachments



Wyaralong Dam - ANCOLD.jpg IMG\_7292a.jpg IMG\_9455a.jpg IMG\_9656a.jpg IMG\_9485a.jpg

Hi Greg,

Thanks for your email below and that of today with Tom R's CV and I look forward to being of assistance as the project develops.

Barnard are a reputable firm with motivated personnel so it is a good choice as far as I am concerned.

I assume the first stage trial mix program (with MDA) is complete and results/report prepared - I recall seeing an 'interim' report during our last meeting. It is not clear from your email whether or not Malcolm D will still be involved, but of course I would be very happy to review the Contractors work plan and results of their mix studies with Tod as you mentioned

Regarding Scott's question on the inclined face, the only experience in Australia was at the recently completed 40m high Wyaralong dam (circa 2012) outside Brisbane done by Entura/SMEC, competitors of GHD's (!) where - as I understand it- the smooth spillway chute used inclined forms instead of steps, See photo attached.

Otherwise the only ones under construction at the moment would be in China - I am unaware of any others at this time - I may learn more at the RCC 2015 Symposium in Chengdu in Sept. In Ghana at Bui Dam a few years ago Sinohydro used the inclined form entirely for the d/s face (3m high forms) which was most successful. - I may have mentioned this to you and showed some photos in my earlier presentation. Anyway some photos are attached

However I think the main point for the Muskrat dam is achieving freeze - thaw resistance by using CVC and, as the inclined face system really relies on using GERCC (cheaper and simpler than trucking in large volumes of CVC to fill in under the high overhanging form (as associated with RCC Sloped Layers), where it is not possible to access with the drum rollers), I don't believe it can be used at Muskrat unless the forms are limited to 0.6-0.9m high using CVC but this would make the use of Sloped Layers non beneficial.

Has the RCC trial mix work to date proven that RCC/GERCC can be effectively (and economically) dosed with AEA to achieve adequate freeze -thaw resistance? - Malcolm D seemed 'confident' on this but I am still 'sceptical'!

No I don't know Tom Reynoldson, I may have met him briefly at Olivenhain or Saluda but can't recall the name.

His CV certainly reflects that his experience seems to be more in Lab work rather than in the actual RCC mix design - bear in mind that at Olivenhain and San Vicente the designer was responsible (using Malcolm D), at Portuguese dam it was Corps of Engs. who would themselves have designed the mix and at Saluda (I was advisor to Barnards on a few issues) the mix was designed by Ernie Schrader. However Tom R certainly has the credentials to run the laboratory and QA system which is a positive. Of course the contractor if pressed, may employ someone like Schrader which would make for an interesting situation, given Malcolm D's earlier involvement. In my view It would be better to encourage them to seek assistance rather from Malcolm D than from Schrader.

I hope this helps.