

Meeting opened: 10:10

Location: WebEx

**Present:**

Mark Sims (MS; chair)

Simon Wilson (SW; CNCC)

Richard Vooght (RV, DCUC)

Stephan Natynczuk (SN; ACI)

Andrew Atkinson (AA; CSCC)

**1. Apologies**

Vince Alkins (VA; CCC), Bob Mehew (BM; Rope Test Officer), Colin Bunce (CB; SUI)

**2. Items for Any Other Business**

AA: Petzl Coeur Pulse removable anchors [discussed under item 11]

**3. Previous meetings/ongoing projects**

*Recap/review any ongoing items from previous minutes.*

MS noted that minutes from recent years were sparse, so this item was included to attempt to document ongoing projects.

- Rope testing:

MS noted that from previous minutes this seems to have been an area that some committee members had been sceptical of the potential benefits of.

BM has been in contact with MS to say that he is unlikely to attend any meetings, but that he would like to remain in his role as rope-test officer to continue the work on rope ageing. BM also mentioned that if someone came forward with a desire to take on rope testing role, then he would be more than happy to hand over the role.

MS, AA, RV, SN all happy with this. MS noted that this was with proviso that rope testing costs remain low.

- Anchor testing (either after installation or systematically):

MS: this seems to be an issue that has never really gone away in E&T group from previous minutes, and something that is inconsistent between regions.

SW: DCA have a (BCA) tester. CNCC don't.

SN: this is not an urgent issue to address

Agreed to keep the issue on the agenda to discuss in future

- Anchor substrates: comparison of rock types:

RV: work nearing completion. Installed Bolt Products GP8-100-16A4 anchors in granite, Devonian limestone and shale. BM currently has details. HCR anchors tested too with good results. 80 kN in limestone. Work has been written up. DCUC happy to proceed with installations in shale, limestone and granite.

- SW: we can't remove BP anchors. AA: we can (cut off and core). SW leaves big hole. Can we reuse?

- 8mm solid leg anchor (GPS8-100A4) has been used (in desperation) in Mendip [see item 4]

- Titanium anchors:

RV: work finished, but problems with metal failure; NW had investigated.

Action: MS to ask NW about tests carried out in order to ensure conclusions are written up.

- Fatigue testing:

MS: found mention of fatigue testing (repeated loading of anchors) in previous minutes. No one else present seemed to be aware of this.

Action: MS to speak to NW to find out more.

#### 4. National anchor availability [discussed alongside item 6]

*All BCA-endorsed anchors are not currently available to all regions. Is this something that can be addressed?*

MS: BP twisted GP8-100-16A4 is the only E&T endorsed anchor accepted nationwide. CNCC have access to IC anchors. Inability to replace BP GP8-100-16A4 is a significant issue for other regions. AA: CSCC have decided they definitely do not want to use GP8-100-16A4 anchors on conservation grounds.

SW showed a new Climbing Technology anchor ("Glue-in anchor") that he had purchased. Similar to Edelrid Gluebolt anchor, but available in 316 stainless steel in 2 lengths (75 mm & 105 mm) and in HCR steel (only 105 mm). Requires 14 mm diameter hole x 85 mm deep (for 75 mm anchor). SW has purchased 8 to test.

All agreed that they are worth testing as BP alternative. Simon ready to go ahead (pending Item 12)

Action: Simon to test CT resin anchors and report findings to the committee

MS noted some mention of the narrower shaft (6 mm vs 8 mm steel) twisted BP anchor (GP6-100-12A4) in previous E&T documentation.

RV mentioned slight coning on extraction of the larger (8 mm) twisted shaft anchors. AA added that sometimes large sheets of rock come off on extraction, and suggested this could be an inherent flaw with the twist design (i.e. could well apply to narrower shaft). SW agreed.

All agreed just to go ahead with testing the CT anchor for now.

AA mentioned recent tests of straight BP anchors GPS8-100A4, notably some disastrous results. Reported that most failed at the resin-metal bond. A different (greener) organic solvent to usual had been used to clean off oil, so failure could be related to this. More have been installed using petroleum to clean the anchors to test the hypothesis. AA chasing to get access to tester in order to carry out tests.

SW queried the hole diameter and resin that had been used

AA: the manufacturers recommended hole diameter and Fischer FIS V resin.

Action: AA to test GPS8-100A4 anchors (once puller has been sourced) and report findings to the committee

**5. CNCC anchor reimbursement**

*The CNCC are being reimbursed for the purchase of IC anchors to the value of BP anchors. They are currently covering the additional cost. Should the E&T group recommend the BCA cover this additional cost?*

AA asked if the CNCC are likely to stick with using IC anchors in future, or move to the CT anchor if test results are favourable.

SW indicated that it was unlikely that the CNCC would get further IC anchors made due to the difficulties of organising manufacture if a suitable alternative (e.g. CT anchor) is available.

AA: Development, use and purchase of IC anchors got the BCA out of a hole at a time when no suitable anchors were available under the scheme, so it would therefore seem reasonable to reimburse the CNCC to the full cost. Furthermore, anchors do not just benefit northern cavers, but anyone visiting the region.

All agreed with this proposal and reasoning.

Action MS to draft proposal for council and email it to the committee for comments

**6. Replacement-friendly alternatives to twisted BP anchors**

*Can/should we source an alternative anchor to the BP anchor with more favourable characteristics with respect to conservation on extraction and replacement?*

Discussed alongside item 4.

**7. Additional CNCC anchor installer trainer**

*The CNCC have requested that Damian Weare is approved as an additional IC anchor installer trainer.*

SW: Sam Allshorn had proposed that Damian be approved as an additional installer trainer. SW happy with this.

AA noted that the CSCC believe installer trainer approval to be a regional issue.

SN: discussions about training and approval have gone on for years.

SW: In this instance, I can't think of anyone better than Damian.

MS: can we OK Damian in this instance (since current IC installer trainer is happy with it) and subsequently consider the issue more generally? Nick Williams had indicated previously that the E&T group needs to decide its criteria for installer training.

SN: we should not generally go about approval on an ad-hoc basis

RV, SN, SW, MS all agreed for Damian to be approved in this instance (AA abstained)

Action: MS to find out what now needs doing for approval

Action: MS to look into how approval works for future discussion

## 8. Resin shrinkage/loose anchor update

*In minutes from previous meetings, the issue of loose anchors was raised. Are there any updates from the regions on this?*

SW: CNCC have agreed to carry out an inspection of every anchor in the region. Gary Douthwaite has agreed to coordinate this, and it is ongoing. All anchors are to be given a number, and volunteers intended to go and carry out visual inspection. CNCC are also encouraging reports of loose anchors and have a measure of the problem. In general it is the anchors placed very early in the scheme that are becoming loose, e.g. all anchors have now been replaced in Bull Pot and Tatham Wife Hole. It is important to find out whether anchors are continuing to come loose, and if so, why. Currently the number of very loose anchors is manageable. A report is being written and to be published soon.

Action: Simon to email report around the committee once finished

AA: An anchor in Swildons has recently been reported as loose, which will need to be replaced soon-ish, but no alternative anchor to BP GP8-100-16A4 anchor currently available (see Item 4)

MS: is it worth testing to 6 kN? Elsewhere this has been reported to "set" the anchor.

AA reluctant to test in this way because it is an old p-anchor so slippage of the tester could cause problems.

SN noted that the loose anchor in question is one of 3 anchors and that there is also a natural back-up. The anchor is part of a twin back-up.

RV: how much movement is there?

AA: less than 2 mm

SW: could a new CT anchor [see Item 4] be placed in this instance in anticipation that it is approved by the E&T group?.

MS suggested AA bases actions on results of CT testing once carried out and written up by SW.

All agreed

SN: A lot of people rig off that one anchor. Few use a back-up.

AA: when the same anchor has been replaced previously, even after drilling down the side of the resin the anchor has taken > 10 kN to extract.

SW queried why the same anchor is requiring replacement

AA: Rock in the area is not very good and is semi-calcified. There are also probably 50+ trips a week that use it, so it could potentially be related to fatiguing. Furthermore, it is often poorly used, i.e. loaded heavily.

SW queried if the placement was wet.

AA: damp, but with no running water over the hole. Has been very careful to avoid water in the hole when replacing.

MS: CB had mentioned that one anchor had been removed from Pollelva (placed in late 1990's?) due to slight rotary movement of 1 or 2 mm. No reports of loose anchors from other regions.

## 9. Loose anchor definition/advice

*Is there currently any specific guidelines or consensus on what constitutes a "loose" anchor, and at what point any anchor movement is problematic? Should the E&T group investigate?*

SW: E&T advice has previously been that up to 1 mm rotation either direction is OK. This potentially causes the problem that people will not report loose anchors. Any movement should be recorded regardless of rotation because it is useful to the E&T group.

MS: if current advice is preventing reports being made, there is definitely a problem

AA: original advice came from testing DMM anchor. Slight movement deemed acceptable to avoid all anchors being reported.

SW: any visual movement when tested by hand should be reported. The E&T group should not give advice on relevance of movement to safety.

SN: should any concern simply be reported?

AA: we want any loose anchors to be reported, especially if there is any visual movement. We should have feedback.

Action: MS to email current advice round the committee for comments

Action: SW will try to word updated advice

## 10. Anchor records

*Just a check that records between regions are consistent.*

MS had not been passed on any documentation when taking on the role

RV: is there a standard form for what should be recorded when placing an anchor?

MS: the E&T anchor policy on the BCA website stipulates the minimum requirements

Action: SW to send spreadsheet template to RV

AA does not have records from the interim period between two periods of being CSCC rep.

Action: AA to try and find CSCC records.

SW: some CNCC records very old, but all are now digital and believes they are complete.

MS: should the records be held centrally by the E&T group as well as by the regions?

All agreed that centralised records were a good idea, notably in the context of identifying trends e.g. with loose anchors. Also suggested that it would be of benefit for some of the anchor information to be openly available for cavers.

Action: all regional representatives to send current anchoring records to MS

Action: once regional information is received, MS to email committee with proposal of how information should be stored centrally and what installation information should be openly available

**11. Concrete screws**

*Simon Wilson recently published a report on concrete screws, available on the CNCC website (<https://cncc.org.uk/doc/1182>). It seemed worth highlighting to the E&T group. Is this something we want to promote to the caving community further via the BCA?*

AA: there is a possible caveat to this work: when previously testing concrete screws in Fairy Quarry, they could not be installed without over-torqueing, potentially due to particularly hard limestone. An Italian group had had the same problem

Action: AA to test concrete screws again using the same type of screws tested by SW

MS: should we highlight the results of SW's report?

AA noted concern over variation in rock types

RV: outside of the E&T group, Devon cave rescue (DCRO) had emailed a report on concrete screws.

AA: the new Petzl Coeur Pulse removable anchors are of interest to cavers for similar reasons as concrete screws. Mendip cave rescue have been looking into them for the purpose of rescues. Holes drilled for them should be reusable.

RV: rescue teams in Devon/Cornwall currently use rawl bolts, but holes can wear and become larger over time.

SW stated intention of continuing testing by looking at shorter concrete screws to update report.

Action: SW to email committee when report has been updated after further tests.

MS: it sounds like more data in general would be useful before potentially actively publicising the work done.

AA: keen to write up work done using Pulse anchors

Action: AA to email committee with report on Petzl Coeur Pulse anchors once complete.

**12. Calibrated load-cell availability**

*Should we have one available for use by the E&T group?*

SW has one not calibrated since 2014. Cost of calibration is ca. £50. Tests of CT anchors waiting on this.

All agreed that SW OK to get load cell calibrated

Action: SW to arrange for load cell to be calibrated

**13. Current anchor stocks**

*What are the current anchor stocks held by each of the regions and how do these compare with likely usage for upcoming projects if known? (please check in advance of the meeting for your region if possible and where applicable)*

CCC: (email from VA) 98 x BP GP8-100-16A4 (316 steel) anchors

CSCC: ca. 60 x BP GP8-100-16A4 (316 steel)

CNCC: ca. 550 IC anchors

SUI: (email from CB) 12 x numbered anchors and 14 x unmarked anchors BP twisted 8mm(?)

DCUC: 70 x BP GP8-100-16A4 (316 steel) anchors, 17 x 8mm twisted HCR, 37 x 6 mm twisted HCR.

DCA: ?

Nick Williams: 680 x GP8-100-16A2 (304 steel) anchors, 30 x BP GP8-100-16A4 (316 steel), several hundred Chinese 316 anchors (training only), several hundred samples and 'pulled' tested bolts.

**14. Comments on 2018/2019 budget**

*At the BCA council meeting it was mentioned that it is useful to have an idea of a proposed budget in advance of October. Can we estimate E&T expenditure for 2018/2019?*

MS: need to remember that £1400 (hopefully) likely to be spent on IC anchors

RV: will the group want to fund a new anchor tester or extractor in future?

Consensus that we need to determine what extractors/testers the E&T currently have access to [see Item 16]

No clear current anticipation of unusual expenditure for 2018/2019

**15. Next meeting**

*Arrange a date for the next E&T meeting*

General consensus that WebEx had worked well for this meeting, particularly with the spread around the country

AA: a lot could be done by email and with shorter evening meetings to minimise time impact of meetings

MS agreed, and noted that this lengthy weekend meeting was not intended to set a trend

SW suggested 2 main meetings a year should suffice

AA proposed we next meet at Hidden Earth

Action: MS to email round to propose next main E&T meeting is at Hidden Earth

**16. AOB**

AA asked if we can get an anchor extractor made or available for each region? CSCC currently use a Hydrajaws tester for anchor extraction

SW: BCA bought 3 Hydrajaws testers of which the DCA have one, Les & Glenn have one and this is with the CSCC for CCC, DCUC and CSCC to use.

AA found email from BM saying one had been picked up from Les & Glenn, so that may now be with BM

Action: MS to email all regional reps to find out what anchor testers/extractors they currently have access to, and what additional access would be desirable.

Action: MS to contact BM to track down Hydrajaws tester

MS highlighted one additional item for brief discussion. Noted that the current E&T section of the BCA website is out of date in places and information is not clearly organised

Action: MS to look into how E&T website can be improved

---

Action (general) highlighted by SW: we should all proactively make an effort to keep people in the loop by email.

Meeting closed: 12:25