



AAC Publications

Rappel Anchor Failure – Nut and Cam Pulled Out

Idaho, Black Cliffs, Mid Cliffs Area

On October 8 at about 4 p.m., USAF Tech. Sgt. Peter Kraines (33) and four others were climbing at the Black Cliffs area near Boise. All five were experienced Air Force climbers on orders to conduct climbing training. The five had been climbing since about 11 a.m., and during a final training maneuver they set up a rappel station atop the cliff above More Than I Can Chew (5.9). Sgt. Kraines had assessed the bolted anchor located below the cliff edge and determined that reaching this anchor would create an unsafe situation for the less experienced climbers on the team. The group decided to build an anchor using removable protection at a natural bench above the cliff that offered a more convenient location to assemble and stage the rappel.

An officer who interviewed the team members at the scene described the anchor as a self-equalizing system comprised of two pieces of gear (a number 4 DMM Walnut and a number 2 DMM Dragon cam) connected by Sterling Power Cord and carabiners, with all placements positioned into vertical cracks between basalt blocks or columns.

Kraines and another climber were clipped to this anchor system as the rappel was being readied. A third climber moved to the bench, rigged his rappel device, and descended to the cliff base. The other climber at the anchor then followed on rappel, with Kraines still secured to the anchor. When this second climber was about 15 feet from the ground, one side of the anchor failed, causing the rappeller to drop a short distance, and then the second piece pulled out, dropping him to the ground. The anchor failure, along with the weight of the climber still on rappel, pulled Kraines from his stance, causing him to fall 53 feet to the ground. The climber on rappel was uninjured, but Kraines sustained traumatic blunt force injuries. His fellow airmen and paramedics performed CPR and a field tracheostomy, but were unable to revive him. (Sources: Officer Bryan Kindelburger, Ada County Sheriff's Department, and U.S. Air Force Ground Accident Investigation Board Report: Mountain Climbing Mishap, 8 October 2019.)

ANALYSIS

All five team members were trained climbers with an advanced emergency medical background. Tech. Sgt. Kraines was trained as a Special Tactics Pararescueman. The team chose to build their anchor above the main cliff. As with many crags formed from basalt, the rock on top of Black Cliff is blockier and more broken than on the cliff face itself. Although the team tested the rock at the anchor site, rock surrounding one of the anchor pieces likely shifted or broke under load, allowing the piece to pull out and propagate force to the other piece, which also pulled out.

The cord they used to construct the anchor was configured in a modified quad, which achieved some equalization between the two pieces of the anchor but did not minimize extension when one piece failed. Thus the remaining piece likely was shock-loaded. Backing up the anchor with at least one additional piece, tying load-limiting knots close to the master point to minimize extension, or choosing an alternative anchor location could have prevented this tragic accident. (Source: The Editors.)

Images

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