



YELLOW SPUR ROPE FAILURE INVESTIGATION

Full [Yellow Spur Rope Failure Investigation](#), 15 pages, 1 MB, PDF

On June 22, 2010, Joe Miller fell to his death while attempting to lead (rock climb) the second pitch of the [Yellow Spur route](#) in [Eldorado Canyon State Park](#).

This report documents the mechanical and geometric factors involved in the rope failure and identifies the probable failure mechanism. The report does not evaluate human factors, alternative protection placement(s), or possible outcomes from different hypothetical circumstances. RMRG's investigation did NOT find any manufacturing defects in any of the climbing equipment Miller used.

Probable accident sequence figures, right:

Prior to the fall, Miller was near or above the last piece of protection (**P**) above a slight bulge. When he fell, this top piece of protection failed. **Blue lines** represent motion.

Miller fell vertically past a bulge until the rope began to catch his fall. The next piece of protection (**Black dot**) held, but was slightly climber's right of Miller's trajectory. As the rope pulled tight, Miller swung ("pendulummed") slightly to the right, dragging the rope over a sharp protruding "knife" edge (**Dashed green arrow**) just below the protection that held (**Black dot**).

The rope probably slid along the edge (movement parallel to the edge) while under the high tension caused by nearly arresting the fall. The edge severed the rope, and Miller fell to the ground, suffering fatal injuries.

The second figure (right most) shows a profile view at the time when the rope pendulummed across the knife edge. Note the two bulges: one above the runner where the climber likely fell from and pulled the protection (**P**), and the second, where the knife edge (**Dashed green arrow**) is located.

For a more detailed and complete explanation, test results and photography, download [Yellow Spur Rope Failure Investigation](#), 15 pages, 1 MB, PDF.

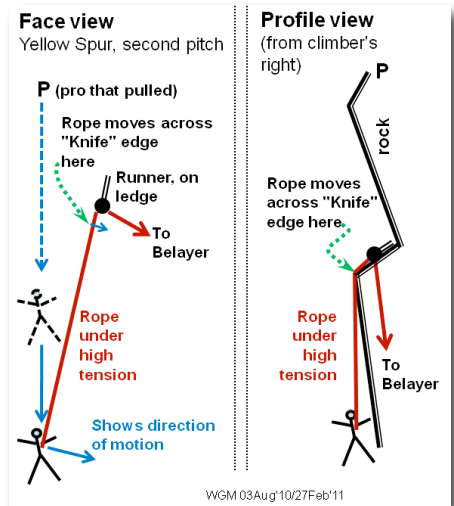


Figure 1 - Red line represents the rope.

RMRG offers our deepest condolences to Joe Miller's family and friends for their loss.