

World Record Rebreather Dive Oct 28th 2004

It had been fun supporting Verna as she successfully completed her world record dive. I was her deep support and dived to 150m, with the gas to go to 221m (her max depth) if required.



After a two-day break from diving, it was time for me to go for a deep dive. I am more comfortable with a low-key approach to my deep dives, but with the Extreme Dream Team approach that was not really possible. I was grateful for the support the team provided all the same. Don Shirley (IANTD SA) was to be my deep support, with others providing shallow support.

I aimed to be in the water by 7am, so told the team my aim was 6am. That seemed to work, as we were ready to go with no rush, at my planned time. The preparation for me was smooth apart from a SPG needing replacement. Don could not say the same. He had four problems to deal with apparently, but the team rallied around and had him in the water at the required time.

I was diving a Mk15.5 rebreather that I had modified by removing the analogue electronics and replaced them with Hammerhead digital electronics. These electronics I had filled with medical grade paraffin to avoid any implosion problems at depth. Mounted on each side of the rebreather housing was a 3lt tank. On my right was a tank holding argon for my drysuit. On the left was a tank that I usually filled with air to inflate my wing. On this dive I was rather more innovative and filled it with oxygen instead. Rather strange I know to use O₂ for wing inflation, but the secondary role of the tank was a backup source of O₂ for the rebreather. The Mk15.5 has two 3lt capacity spheres for O₂ and diluent. On a very long dive 200 bar in a 3lt tank gives me 10 hours maximum, I wanted a bit more, hence my secondary use of the wing inflation gas. I also have a whitey valve installed on my rebreather to enable the plugging in of off-board diluent as appropriate. This whole dive I would use off-board gas as my diluent.

I was quite relaxed and started the descent with the rebreather and four 11.4lt tanks filled with 4/80 bottom mix for bailout if required. I was using one of these tanks as my diluent supply as well, rather than on-board gas. My unit's quick connect/disconnect system makes diluent changes easy. That was as well really, as on the ascent I would have 7 diluent changes.

Once through the tightish entrance and at 40m or so I started the descent proper. The very high helium content in the four bailout tanks made me quite buoyant and it took some time to get the descent rate as high as I wanted.

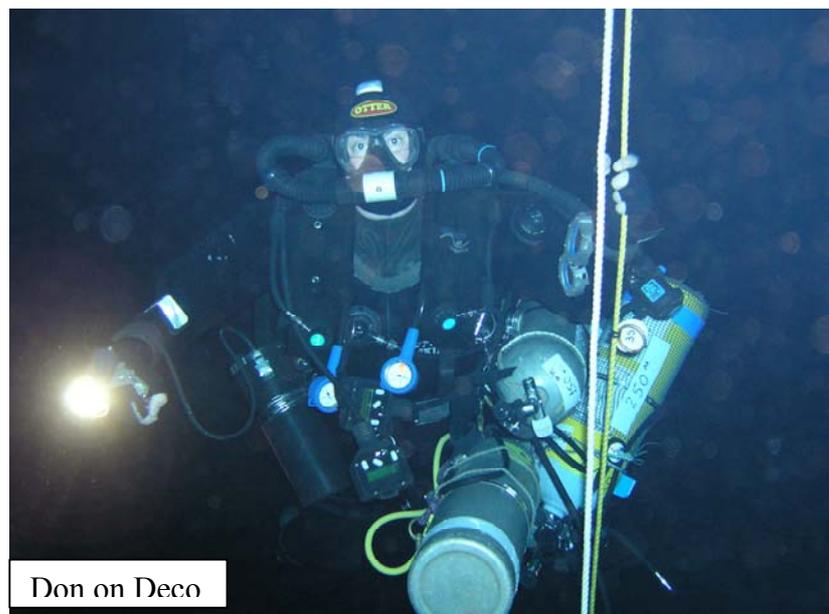
This had been a difficult dive to plan. I did not know at what depth I would reach the bottom. I did



not know if the shot-line had in fact got to the bottom. With a high rate of descent I could possibly slide off the end on the descent. The other hazard possibility was that the shot-line was too long and there was a pile of rope on the bottom I could get tangled in. I needed to be very aware from about 240m on to be looking down and surveying what was below. I also did not want to hit the bottom and sink into silt. Once on the

bottom I then wanted to tie off, look for the deepest direction to go, and run a line while bottom time permitted. What depth would that be? How long would it have taken to reach the bottom? To what depth would I go before turning the dive? This was not to be a computer dive. I was carrying two VR3's and a Nitek He, but I was only going to be using them as bottom timers. The VR3 algorithm at this depth was not for me. The dive would have been far too long. The Nitek He could not cope with the fact I was diving a rebreather and would be bent in a flash, thus my decision to use VPM-B generated tables. I carried a whole swag of plans on slates. The deepest was for 300m, the shallowest 270m, both CCR and open circuit bailout. I also did lots of what-ifs on the computer to get a really good feel for how unplanned variations would affect the profile. For example, for every second at 280m it would cost me 1.2 minutes extra deco. I was confident that if I stayed within the outer boundaries I had set I would be ok.

Passing 240m I started scanning below to see the status of the shot-line, bottom and so on was. I could see the shot-line was coiled up with about 5 meters in a bundle on the rocky bottom. There did not appear to be silt in the immediate vicinity, rather a debris pile of rock. As soon as I reached the bottom of the shot line I clipped on my reel. I scanned through about 270 degrees to select the best



direction to go, made a decision and started swimming. I was headed for what appeared to be a deeper section of the cave, and was laying line as I swam. This was cave diving at its best. I scanned the floor as I went, taking in the scenery. It appeared the cave would not go much deeper. I swept right and left with my HID light as I moved forward.

One VR3 had failed as I reached the bottom but the other soldiered on faithfully. I had tied off and was exploring, at a depth of 260m and descending. The unit was breathing well. The Hammerhead was keeping an accurate 1.3 PPO2 and I was relaxed and could almost not believe where I was. I was slowly descending and reached a depth of 270m. The floor bottom appeared to



be not any more than 280m deep ahead. I had laid about 20m of line and as I swept left with my HID light, at an angle of about 30 degrees, and 15m away I saw a body, as plain as day.

This had to be the body of Deon Dreyer, who died on the 17th Dec 1994. Even following extensive searches his body had never been found.

He was lying on his back, arms in the air and legs outstretched. There was no shock on my part, but rather a decision making process of what to do. Do I continue for depth or go to the body. The decision was easy really. I turned and was soon next to him. I needed to try and make a recovery of the body.

Time was critical. I was within seconds of my turn time and I needed to make a decision. I tried to



lift him, but to no avail. I knelt next to him and tried harder. I was now puffing and panting with the exertion. This was not wise I told myself. I am at 270m and working too hard. The problem was his twin 10.5lt tanks and large old fashion battery pack was stuck in the mud. Time to go; I was one minute over my maximum bottom time already. I tied off my reel to him so that he could be found again, not even wasting time cutting the reel free. I followed my line back to the shot line and started my ascent. Time for

some mental arithmetic! I also concentrated on getting the ascent rate right until the first deco stop

at 221m, Verna's world record depth set a couple of days earlier. At 150m, 48 minutes into the dive I removed my four bottom gas bailout tanks and clipped them to the line. I then clipped on the two new tanks, plugged in one of them, did a diluent flush and continued the ascent. I met Don as planned at 135m. He checked I was ok and then continued down to 150m to retrieve the tanks I had recently left. He soon caught me on the ascent again and paused for some communication. I wrote a note on a slate. "270m, found body." That raised his eyebrows somewhat, he shook my hand and then I signalled that he could continue with his ascent. I was alone again

The next diver met me at 40m 90 minutes later. With the extra bottom time I used the 300m plan for deco, and added 90 minutes to the shallower stops. The various gas switches and deco stops all went smoothly. In the 17degC water, with my DUI CF200 drysuit filled with argon I was not cold. Nine hours forty minutes after starting the dive I emerged into the late afternoon sun. I spent three hours lying quietly before taking a very slow and easy climb up the steep hill to where a vehicle could take me to the farmhouse where I was staying.

While resting I noted a dull ache in my left forearm. My Nitek He computer had been too tight around my wrist but I had not noticed at the time. It obviously had restricted the blood flow and now I was paying the consequences. The pain did not reduce with O2 therapy, or overnight so the next morning I elected to go to the Welkom chamber just in case. DAN decided it was best to undergo treatment in the chamber as a precaution. The pain went within two hours of starting the treatment.



The news quickly spread and the media interest was intense. The great achievement of the dive as far as I was concerned

was running a reel at that depth and actually exploring. The media was of course more interested in the body, as were the police.

Plans are being formed to recover the body in early January.

Dive details

Diver:	David Shaw
Depth:	Depth 270m
World Records Broken:	Depth on a rebreather Depth in a cave on a rebreather Depth at altitude on a rebreather Depth running a line
Rebreather:	Mk 15.5 with Hammerhead Electronics
Cave:	Boesmansgat (Bushman's Cave), South Africa
Cave Elevation:	1550m
Dive Duration:	9:40
Dilutents:	4/80, 10/70, 15/55, 17/40, 26/25, 50%, 100%, Air