



MAGISTRATES COURT *of* TASMANIA

CORONIAL DIVISION



Record of Investigation into Death (Without Inquest)

*Coroners Act 1995
Coroners Rules 2006
Rule 11*

I, Olivia McTaggart, Coroner, having investigated the death of Eric Fillisch

Find, pursuant to section 28(1) of the Coroners Act 1995, that

- a) The identity of the deceased is Eric Fillisch;
- b) Mr Fillisch died as a result of drowning whilst diving following displacement of his mouthpiece in the circumstances described below;
- c) The cause of death was drowning; and
- d) Mr Fillisch died on 19 November 2016 in the vicinity of Visscher Island in North Bay, Tasmania.

In making the above findings I have had regard to the evidence gained in the comprehensive investigation into Mr Fillisch's death. The evidence comprises the police report of death; an opinion of the forensic pathologist who conducted the autopsy; police and witness affidavits; expert reports and testing results relating to the diving apparatus; medical records and reports; photographs and expert forensic evidence.

Eric Fillisch was born in Richmond, Victoria, on 7 February 1967 to parents Rudolph and Anita Fillisch. He was aged 49 years at the time of his death. He was married to Gabrielle Fillisch and they have two daughters, now adults. Mr Fillisch worked in sales positions for many years. He was employed as a pharmaceutical representative at the time of his death. Gabrielle Fillisch, in her affidavit for the investigation, described her husband as a family man who loved his daughters dearly. She said that he loved life and had numerous interests, such as computers and electronics, sailing and photography. She also described him as physically healthy, a fact supported by his doctor's records received as part of the investigation.

In 2006 Mr Fillisch was introduced to scuba diving by a friend. It soon became his passion and in 2007 he completed his PADI open water diver qualification. He also became a member of the Tasmania Scuba Diving Club ("the club").

In 2013 Mr Fillisch completed his rebreather dive qualification in Victoria where he obtained an air diluent closed circuit qualification. At the time of his death he was using a rebreather apparatus. The rebreather diving process will be outlined further in this finding.

On Saturday 19 November 2016, Mr Fillisch left his home address in Lenah Valley for a scheduled dive expedition with the club. He travelled from his home to Sorell where he met other club members. From Sorell, Mr Fillisch travelled to Boomer Bay which is located near Dunalley in the south of Tasmania.

At Boomer Bay the group of divers left the boat ramp in a 5.9 metre rigid inflatable vessel called *Y KNOT* ("the boat"). This boat is owned by the club. On board the boat with Mr Fillisch were Mr James Parkinson, Mr Justin Marysej, Ms Peng Yang and Mr Wei Lei.

The group left in the boat from the ramp at approximately 8.45am. The weather conditions on the day were ideal for diving, being calm with a light westerly breeze and minimal swell.

At approximately 9.45am Mr Marysej, Ms Yang and Mr Lei conducted a dive in the vicinity of Kelly Island near Lagoon Bay whilst Mr Fillisch and Mr Parkinson remained on the boat. These divers were all diving on scuba cylinders and their dive lasted approximately 45 minutes. Once at the surface, the three returned to the boat and removed their diving equipment.

Between 10.30am and 10.45am, Mr Fillisch and Mr Parkinson entered the water in the vicinity of Kelly Island using rebreather diving apparatus. Mr Parkinson described the visibility as between 15 and 20 metres, being exceptional visibility underwater. The two dived to a maximum depth of 25 metres, then making their way to shallow water before their ascent. Mr Fillisch and Mr Parkinson dived for approximately 45 minutes on this occasion before they both returned to the boat.

At the time of the incident Mr Fillisch was using a "rEvo" Rebreather Diving Apparatus ("rebreather"). Rebreathers are not uncommon, although the majority of recreational divers utilise scuba or hookah air delivery systems when diving.

Specialist evidence received in the investigation described both the scuba and rebreather diving processes. I now summarise that evidence.

When diving on scuba (an acronym for "self-contained underwater breathing apparatus") or hookah air delivery systems, the diver will breathe in normal atmospheric air, compressed in a tank, which consists of approximately 78% nitrogen, 21% oxygen and 1% trace mix. This air is

breathed in by the diver and then exhausted from the body in the surrounding atmosphere in the form of bubbles underwater.

The air supply for a rebreather system works differently to scuba and hookah air supplies. The rebreather system recycles the air expelled by the diver and “scrubs” the carbon dioxide from the exhaled breath so it can be re-breathed via a closed circuit breathing loop. It does this by filtering the exhaled air through two scrubbers - canisters containing soda-lime, a carbon dioxide absorbent. The scrubbers clean the exhaled air of carbon dioxide. The system is designed to add a constant flow of pure oxygen to the breathing loop from one of the cylinders carried by the diver. Mr Fillisch carried a white cylinder with a yellow label, marked “O2”. This addition of oxygen to the scrubbed breath allows the diver to continue to breathe through the closed circuit and no air or bubbles are expelled externally from the system.

There is potential for the breathing loop in a rebreather system to contain too much oxygen, which may cause oxygen toxicity in the diver. To eliminate this possibility, the diver will carry a second cylinder of diluent. Mr Fillisch was carrying a second cylinder (white cylinder with a red “DIL” label) which contained normal compressed air, being the same air as used by a scuba diver.

The rebreather system is automatic and designed to keep the required partial pressure of oxygen at the correct level in the closed circuit. This is done by self-administering oxygen and diluent when required. The system is designed to alert the diver to inconsistencies or the lack of oxygen or diluent in the system. The diver may, at any stage, manually add oxygen or diluent to the system via a hand-held device.

The closed circuit breathing loop has a two-way system which allows the diver to breathe the rebreather gas or, alternatively, turn a selector valve near the mouthpiece to breathe directly from a bail-out air supply (the same compressed air used by scuba divers). Mr Fillisch was carrying a third cylinder (yellow in colour containing the bail-out compressed air supply). The bail-out cylinder is designed to be used in emergency situations when the rebreather system fails or is somehow compromised.

I now return to the activities of Mr Fillisch and the group on 19 November 2016.

All five divers remained on the boat for a period of time whilst they had lunch and explored the area. It was decided that the second dive would be conducted at Visscher Island which is

located approximately 4 nautical miles (nm) south east of the entrance to Boomer Bay. This location is approximately 1.75nm north east of the first dive location.

Mr Fillisch and Mr Parkinson prepared to conduct a second dive at Visscher Island. The other three divers decided not to re-enter the water. This location was chosen as Mr Parkinson was aware of an underwater cave there and he wanted to further explore this area. The area is well known for having underwater caves and is regularly explored by divers.

At about 12.15pm Mr Fillisch entered the water with Mr Parkinson approximately 50 metres from the eastern side of the island. They descended to a depth of 15 metres and explored the cave of interest. In his affidavit for the investigation, Mr Parkinson described the cave as having several branches and he saw daylight through one section, indicating that the system followed through the island and exited on the opposite side. He said that their plan was to see if they could make their way through the caves to the other side of the island.

Mr Fillisch and Mr Parkinson explored the majority of the cave with the exception of the last 10 metres because of the shallow depth and stronger current pushing from the entrance into the cave. They exited the cave together and continued to explore, finding a small fissure cave that Mr Parkinson believed may have been an entrance through to the other side. They both swam into this fissure. In his affidavit, Mr Parkinson stated that, at this point, he checked his remaining dive time and noted that it was approaching expiration due to previous dives using the same scrubber solution in the rebreather. Mr Parkinson stated that he indicated his intention to surface by a hand signal to Mr Fillisch. Mr Fillisch signalled that he understood. As Mr Parkinson ascended, he said that he sighted Mr Fillisch exploring this section of the fissure but did not see him enter it any further than they had already entered.

Mr Parkinson said in his affidavit that there was a moderate surge in the water in that fissure, which he believed represented “relatively good conditions” for the dive, and he said he had no concerns for Mr Fillisch’s safety at the time he surfaced. In his affidavit, Mr Marysej stated that Mr Parkinson, when he surfaced, said that he had come up due to his scrubber being low on air. He told Mr Marysej that, at the time of surfacing, Mr Fillisch had signalled that he was going to continue diving. Mr Parkinson further told him that when they were diving in the first cave, the water was surging and he could feel a compression effect.

In her affidavit, Ms Yang said that Mr Parkinson, upon surfacing, told her that the conditions were not good because the water was moving too quickly. She said that Mr Parkinson recommended that she and Mr Lei not dive.

Mr Lei, similarly, said that when Mr Parkinson came to the surface, he described the water as fast and Mr Lei did not believe that Mr Parkinson was comfortable with the conditions.

I accept the evidence of Mr Parkinson concerning his surfacing and separation from Mr Fillisch. It accords with the analysis of the dive computers as discussed below. I accept that his air was low and this was the main factor in him surfacing. I also accept that Mr Fillisch saw Mr Parkinson surfacing and signalled to him that he intended to remain diving. I find that, at the time, the conditions were not as benign as described by Mr Parkinson in his affidavit. I find that the water was surging, representing risks for cave diving. Specifically, those risks involved a diver being pushed further into a cave, having difficulty exiting a cave and sustaining injuries from buffeting against the cave structure.

Mr Parkinson returned to the boat with the three other divers on board and removed his diving equipment. After approximately 20 minutes, Mr Marysej moved the boat to a location where it was believed Mr Fillisch would surface. When he did not surface, they conducted a full lap of the island on the boat in an attempt to locate him. Mr Parkinson re-entered the water using only a mask and snorkel attempting, unsuccessfully, to locate Mr Fillisch from the surface.

Whilst Mr Parkinson was in the water, those in the boat conducted another lap of the island. Mr Parkinson swam to the island and looked in an area which he believed would be the exit of the underwater cave. He did not see Mr Fillisch at any stage. The boat returned to Mr Parkinson and collected him. The group conducted two more laps of the island in the boat before they positioned it at the northern end of the island in an attempt to see Mr Fillisch when he surfaced.

At approximately 1.15pm members of the group saw Mr Fillisch's fins on the surface on the western side of the island, the opposite side to where he was last seen underwater by Mr Parkinson. They travelled in the boat to that location and saw Mr Fillisch lying on his back with his face under the water, apparently unresponsive.

Mr Parkinson and Mr Wei jumped into the water and dragged Mr Fillisch to the boat. He was unresponsive and blue in colour. He had injuries to his face, his face mask was missing and his mouthpiece was not in his mouth. He was pulled on board and CPR was commenced by Mr Wei. Mr Parkinson cut away Mr Fillisch's dry suit in an attempt to detect a pulse, but he could not detect one. For the reasons set out below, I am satisfied that Mr Fillisch was deceased at that time.

Emergency services were called using a mobile phone and the group travelled back towards the Boomer Bay boat ramp. Their boat was met by paramedics in a second boat before they arrived at the ramp. Paramedics boarded the boat and attempted resuscitation. Further resuscitation measures took place at the boat ramp but ceased a short time later. Mr Fillisch was then declared deceased by the paramedics.

Police officers attended the Boomer Bay boat ramp and commenced an investigation. The members of the group, in their respective affidavits, all indicated that the diving conditions at the time of Mr Fillisch's death were almost perfect, with minimal swell and excellent visibility below the surface.

Upon its return to Boomer Bay boat ramp, the boat was secured, photographed and transported to a secure compound where a full forensic examination took place. Nothing relevant to Mr Fillisch's death was identified from this investigation.

On 30 November 2016 police divers attended the location at which Mr Fillisch was diving. During this operation, divers were tasked to locate any foreign items in the vicinity and, in particular, to locate Mr Fillisch's dive computer and dive mask. The divers did locate a stainless steel clamp belonging to Mr Fillisch's diving equipment and the wrist computer he had worn. These were found near the fissure exit where Mr Fillisch's body was recovered. The clamp is believed to have been dislodged from Mr Fillisch's diving equipment whilst he was being thrashed against the rocks on the surface. The mask was not located by the divers. I note that the divers experienced difficulty with surge and swell in their operation.

Mr Fillisch's dive equipment was examined by experts at the Diving and Hyperbaric Medicine Unit at the Royal Hobart Hospital. A full examination of the equipment was conducted by Mr Corry Van den Broek (Hyperbaric Facility Manager) and Mr Karl Price (Hyperbaric Technician). In their report for the investigation, Mr Van den Broek and Mr Price stated that there was no evidence of equipment malfunction.

In summary, the results of this examination were as follows:

- The equipment showed extensive damage which would have been caused by hitting and scraping rocks and shells on the surface and subsurface.
- The rebreather equipment when presented was completely flooded.
- It appeared as though the system operated as designed, with the oxygen and diluent gas still available to Mr Fillisch, if needed.

- The breathing loop was tested and showed no signs of leakage.
- The two-way valve on the mouthpiece was located in a position half-way between the bail-out setting and the setting for the breathing loop. The setting of the valve at this position would have compromised the integrity of the system and allowed it to flood once removed from Mr Fillisch's mouth.
- The mouthpiece gag strap was fully extended which may indicate it was not worn correctly.
- The OSTC 2N dive computer worn by Mr Fillisch as a back-up computer which tracked his dive movements was analysed, as was the dive computer of Mr Parkinson. The analysis showed that Mr Fillisch started to ascend from a depth of 14 metres about 2-3 minutes after Mr Parkinson has ascended to return to the boat. Mr Fillisch's ascent was interrupted at the 7 metre mark after which he descended and ascended on two occasions within a 4 metre depth range over a 1-2 minute time frame, before ascending to the surface.
- Once on the surface (and several minutes after Mr Parkinson had exited the water), the computer showed several descents and ascents from 0 to 4 metres over a 44 minute time frame, consistent with Mr Fillisch being unconscious and bouncing through the fissure towards the exit on the other side of the island. At that point of exit, he dropped to an area of 8 metres in depth near where his body was recovered. His body surfaced from this depth over a period of 29 minutes.
- The bail-out system carried by Mr Fillisch suffered catastrophic damage, however this is likely to have occurred once Mr Fillisch was unconscious and being thrashed against the rocks.
- The test date specified for the cylinders utilised by Mr Fillisch showed that testing was overdue. However, the content of the cylinders were within Australian Standards and a lack of timely testing was not a relevant factor in Mr Fillisch's death.

The system utilised by Mr Fillisch included a Shearwater Predator handset and Shearwater DiveCAN control electronics which record all activity on the rebreather system. This information could not be accessed by the Tasmanian Hyperbaric Medicine Unit. This unit was therefore sent to the manufacturer, Shearwater Research Inc. ("Shearwater") in New Zealand for analysis. The information, which was successfully extracted by Shearwater, corroborated the information provided by Mr Van den Broek.

Of interest, the report provided by Mr Tyler Coen of Shearwater stated in his report:

“...at approximately 47 minutes into the final dive, the PPO2 suddenly drops to zero. Examination of the dive logs show that this is because the Predator handset has stopped receiving communications from all of the other electronics sub-systems. It is not possible to determine the cause of the lost communications from the data log”.

The dive profile described by both Mr Van Den Broek and Mr Coen indicates that this loss of PPO2 (partial pressure of oxygen in the system) in the system was well after the event causing his death and most likely occurred whilst his body had exited the fissure and was in deeper water.

It was established through the investigation that Mr Fillisch had been filling his own oxygen and air cylinders through a high pressure air compressor and oxygen filling station. This is not an uncommon process, however, most divers utilise the services of a commercial business to fill and test both oxygen and dive air cylinders.

The cylinder filling station is located at Mr Parkinson’s father’s address in Cambridge and was inspected and photographed. Details were obtained of the log book history and filling process, along with an affidavit from Mr Parkinson who was the main operator of the station. The filling station is utilised by five divers and Mr Fillisch did not have access to the station unless in the company of Mr Parkinson. The examination of the filling station showed no abnormalities and operated as it was designed to do. Mr Parkinson was diving on the same air mix and oxygen mix as Mr Fillisch at the time of the incident.

On 22 November 2016 an autopsy was conducted by Dr Christopher Lawrence, State Forensic Pathologist, at the Royal Hobart Hospital. At autopsy, Dr Lawrence noted extensive abrasions to Mr Fillisch’s face, bruising to his scalp and injuries to his tongue and upper lip. He noted that there were changes to the lungs consistent with drowning. Dr Lawrence had regard to the facts surrounding Mr Fillisch’s dive and the recovery of his body, and concluded that the cause of death was drowning combined with head trauma. In his detailed report, Dr Lawrence concluded by stating that the most likely scenario is that Mr Fillisch drowned as a result of unexpected trauma due to the water surge around the entrance to the fissure cave. He was of the opinion that such trauma displaced his regulator and facemask, causing him to inhale water. He said that it was possible that the displacement of the regulator and facemask may have compromised the rebreather system by water entering it. At autopsy, Dr Lawrence saw nothing that indicated that Mr Fillisch’s death was caused by a natural medical event. Dr

Lawrence, upon examination of Mr Fillisch's injuries, was of the view that they were consistent with his body having travelled through a cave in the island. I accept the evidence of Dr Lawrence as to the cause of death of Mr Fillisch.

A toxicological examination of blood sample taken at autopsy revealed no alcohol or illicit drugs had been consumed by Mr Fillisch at the time of the incident leading to his death.

The investigation revealed that Mr Fillisch was an experienced and competent diver, having completed both his scuba and rebreather dive qualifications. Diving was a passion for Mr Fillisch, and he was well educated in the dangers of diving. Further, he was well educated and qualified in the safe operation of the rebreather diving apparatus that he owned. He maintained his own equipment to a good standard and was actively involved in the process of filling his dive cylinders.

I am satisfied that Mr Fillisch's dive equipment has been thoroughly examined and analysed and find that there were no faults with his equipment that contributed to his death.

Mr Fillisch's gag strap from his rebreather device was fully extended when he was recovered from the water, indicating that it may not have been worn correctly. This strap is intended to secure the regulator in position should the diver become unconscious. If the strap is not pulled tight, the mouthpiece will fall away from the unconscious diver's mouth, allowing seawater into the breathing loop. Mr Parkinson stated that he did not remove the strap when he located Mr Fillisch. Mr Parkinson also stated that the regulator was not in Mr Fillisch's mouth which indicates the strap had been removed, extended or dislodged prior to him being located.

As part of the investigation, several photographs were retrieved from Ms Yang's camera from the day of Mr Fillisch's death. The photographs show Mr Fillisch on board the boat. In some of these photographs Mr Fillisch does not appear to have his gag strap placed over his head as designed. These photographs are believed to have been taken whilst Mr Fillisch was testing his rebreather device before entering the water. In this regard, it is recommended the rebreather device be used on the surface for a period of five minutes to ensure it is operating correctly and adding the required amounts of oxygen and diluent.

Other pictures on the camera show Mr Fillisch wearing the gag strap as designed prior to entering the water. However, it is unknown whether he was wearing the gag strap correctly at the time Mr Parkinson left him underwater in the vicinity of Visscher Island.

Based on the evidence, it is likely that the following events occurred, resulting in Mr Fillisch's death:

- Mr Fillisch continued to explore the underwater fissure identified earlier in the dive by Mr Parkinson, after Mr Parkinson surfaced. Mr Fillisch had sufficient air to allow him to do so and his apparatus operated correctly;
- Within a few minutes of this exploration a surge of water pushed him further into the fissure;
- The surge of water pushed him into the ceiling or rocky side of the fissure, causing him to strike his head;
- The head strike caused Mr Fillisch to lose his face mask and dislodge his mouthpiece;
- The dislodging of the mouthpiece, in turn, flooded the rebreather system rendering it useless unless it operated on bail-out procedure;
- Mr Fillisch ingested water as a result of losing the mouthpiece, which caused him to drown.
- Following drowning, his body was carried through the fissure to the other side of the island where it remained underwater so that he was not initially visible to members of his group trying to locate him.

Of particular note in the investigation is that the switch near Mr Fillisch's mouthpiece was, when he was recovered, set on a half-way position between the rebreather air and the bail-out air supply. In this position, the system is ineffective in delivering the bail-out air supply to a diver. It is unclear if Mr Fillisch had attempted, whilst still conscious or semi-conscious, to switch the system to bail-out air supply or whether the switch was knocked into the half-way position in his buffeting in the cave. I have viewed the apparatus used by Mr Fillisch with the investigating officer and observe that the switch for the valve is difficult to move from one position to another unless deliberate force is applied. It may well have been that Mr Fillisch tried to switch his air supply to save himself when his mouthpiece was dislodged. I note that Mr Fillisch was carrying a personal EPIRB but it was not accessed or activated, suggesting that Mr Fillisch was unconscious or in serious trouble.

Conclusion

The sudden and tragic death of Mr Fillisch has, no doubt, affected many in the diving and general community. Whilst Mr Fillisch was a well prepared and competent diver with properly functioning equipment, he nevertheless made the intentional decision to continue diving after the surfacing of his diving partner in conditions that posed a potential risk to his safety. His death highlights the risks of diving alone, and reinforces the well-known safety principle that divers should start, continue and finish the dive with a buddy.

I extend my appreciation to investigating officer Constable Christopher Williams for his thorough and very high quality investigation. I also greatly appreciate the effort involved in the preparation of the very important analysis and report by Mr Van Den Broek and Mr Price of the Diving and Hyperbaric Medicine Unit of the Royal Hobart Hospital.

The circumstances of Mr Eric Fillisch's death are not such as to make any recommendations pursuant to Section 28 of the *Coroners Act 1995*.

I convey my sincere condolences to the family and loved ones of Mr Fillisch.

Dated: 14 October 2019 at Hobart Coroners Court in the State of Tasmania.

Olivia McTaggart
Coroner