

5 May 2017

To: Members of the Government Administration Committee

From: Franz Ombler, 172 Ōwhiro Bay Parade, Ōwhiro Bay, Wellington

Petition 2014/111

Thank you for the opportunity to provide a written submission to the committee.

New Zealand's regulations regarding SCUBA diving are undermining the safety of divers. The regulations are old-fashioned, parochial and arcane. Regrettably the regulations are becoming more regularly enforced by Worksafe, so they can no longer simply be ignored by divers and diving professionals.

The main ways the regulations are out of touch with standard practice are:

- It is expensive, difficult or impossible to get EU and US SCUBA cylinders approved for use in New Zealand, resulting in some divers ignoring regulations and using cylinders that they can't get professionally filled or tested.
- The regulations are dangerously restrictive about the gases we can put in SCUBA cylinders, so divers ignore the regulations and are unable to get professional support for their dives.

Regulations may also need to be updated to enable Worksafe to effectively operate a banned cylinders list.

The regulations can easily be repaired by simply endorsing equipment approvals from trusted jurisdictions and by endorsing dive training agency guidelines such as those from PADI, NAUI, TDI/SDI and GUE, and international commercial and military guides. This will also reduce the bureaucracy's costs in maintaining the regulations and proactively address other ways in which the regulations are (or become) out of step with best practice.

I respectfully ask the Committee to urge the Government to engage with the diving industry to reform these regulations so that they accord with established practice in the diving community here and abroad, and to remove impediments to our ability to use SCUBA equipment commonly used in trusted jurisdictions such as the EU and the US.

SCUBA cylinder approvals

New Zealand's regulations regarding SCUBA cylinders make it difficult, expensive or impossible to get approval for some types of cylinders even though these cylinders are modern and approved for use in jurisdictions such as the EU and the US. For example, the NZ requirement for NZ-based design approval, rather than accepting international approvals, and the NZ requirement for third party inspection against its own list of approved inspection agencies, which is not a requirement in the EU, make a large range of products inaccessible to NZ divers.

Perfectly good cylinders from trusted manufacturers that are used by divers in Europe and the US are illegally filled privately by NZ divers, especially when they cannot find suitable alternatives or when the cylinders come bundled with other equipment. These same divers would like to be able to have their cylinders professionally filled at filling stations and professionally inspected and tested.

Note that this issue isn't just about importation of new cylinders, it is also about addressing the increasing number and range of cylinders that are already in New Zealand that are not approved and are not able to be tested.

Why trust cylinders approved in the EU, US and Australia?

No-one makes diving cylinders in New Zealand and our market is too small to readily influence the big manufacturers to comply with New Zealand's complicated and unique regulations, but that's what the bureaucracy tells us we should do. An initiative to work with Faber to bring in some cylinders recently took effort from four organisations and will eventually take over ten months to complete. Everyone knew these were fine cylinders, the effort expended was simply unnecessary overhead, wasted time and expense for all parties.

If a manufacturer goes to the effort of designing and making a SCUBA cylinder, they will make sure it is fit for purpose and go through the necessary approval processes to enter these big markets. New Zealand recently began to recognise UN marked cylinders, but most cylinders that the diving community needs do not have UN markings. The processes in trusted jurisdictions, while different from New Zealand, can be trusted to endorse cylinders for use by the diving community here in New Zealand – the regard for human life is similar and the laws of physics are no different in the southern hemisphere!

If a cylinder is safe for Europeans or North Americans to dive with, it is safe for New Zealanders to dive with.

Banned cylinders list

So what about those old aluminium cylinders that are blowing people's limbs off here and overseas? Won't trusting overseas authorities make this worse? Well, the joke is that while we're not able to use most perfectly safe modern cylinders, we're still legally allowed to fill these old dangerous cylinders. This is where we need stronger government intervention! Worksafe occasionally issues safety warnings about cylinders that are known to be dangerous but up until recently most people didn't know about the safety warnings and most dive shops, not wanting to turn a customer away to another dive shop, ignored them too.

If it weren't for the commendable boldness of the New Zealand Underwater Association in January, forbidding its members to fill these cylinders as well as the agreement of their members to go along with their edict, they would still be being filled by them today. Indeed, they are still being filled by some. The government needs to get their priorities right and operate a banned cylinders list based on advice from organisations like the NZ Underwater Association.

Gases in SCUBA cylinders

Over the course of the petition, other issues related to SCUBA cylinder regulations came to light. Of particular concern to recreational technical divers are the limits placed on the gases we are allowed to use, which generally we ignore. Indeed, most of us didn't know the regulations existed, and even if we did, most would be unwilling to pay the \$256.68 to purchase a copy of the out-dated standard it references.¹

Instead, recreational divers follow the guidance of international diver training agencies, the best-known example of which is PADI, but there are others such as BSAC, CMAS, GUE, NAUI, SSI and TDI/SDI. Internationally, commercial and military divers follow other standards such as the International Consensus Standards for Commercial Diving and Underwater Operations, the UK Military Diving Manual BRd 2806(5) and the US Navy Diving Manual.

Recently, Worksafe have proactively intervened in operations (that followed best practice) on the basis of the government's parochial, arcane and dangerous regulations, meaning that diving professionals, for fear of fines or negative Worksafe audit reports, are now unwilling to provide divers with the gases they need to conduct their dives safely.

Specifically, the regulations require that cylinders can be filled only with air, however SCUBA divers regularly need to use a variety of gas mixtures, made by mixing air with oxygen and/or helium. The standards allow some oxygen enriched mixtures (between 21% and 40% oxygen), but it is common practice in the technical diving community in NZ and internationally to use mixtures with lower or higher concentrations of oxygen than are permitted by the standards as well as to add helium. The reasons for this are to increase the safety of a dive by reducing the debilitating effects of nitrogen narcosis at depth, avoiding almost certain drowning following seizures and convulsions due to oxygen toxicity at depth, decreasing decompression time in cold water, and enabling sufficient gas to be carried to complete a dive. The ideal ratios of gases are dependent on the profile of the dive and so cannot be readily prescribed. The standards also limit the partial pressure of oxygen to 140 kPa, but divers breath up to 160 kPa in some situations. Prohibiting the use of ideal mixtures of gases in diving is unacceptable and out of step with standard practice here and abroad.

The regulations also require that cylinders with a particular LAB number are only filled with particular gases, e.g. "Breathing Air", "Air, Nitrox" or "Permanent and Liquefiable Gases". For reasons mentioned above, divers need to be allowed to add oxygen and helium to their cylinders. Where oxygen is added above certain levels, divers have their cylinders "O₂ cleaned" so that this is safe to do, and this is all that is required in other jurisdictions such as the UK. The regulations must be updated to permit the use of any variety of air, helium and oxygen mixtures in SCUBA cylinders regardless of the gas specified for the LAB number.

The only sensible thing for our regulations to say on these matters is that we should follow the guidelines of relevant dive training agencies, commercial standards or military guides.

¹ The NZ regulations refer to AS/NZS 2299.1:2015, which despite its recent revision is old-fashioned and contradictory to modern safe diving practice; references to this standard should simply be removed – it is unnecessary for New Zealand to create and maintain its own special "how to do diving" standard.

Need for engagement

The state of the current regulations is a result of poor engagement between the government and the diving industry over many years. Admittedly, the diving industry is fragmented and so isn't easy to engage with. However, others' stories have made it clear that the government has discouraged engagement. My personal experience trying to get the government's attention on these issues since 2015 has also revealed that the government is not good at listening and does not seek to understand the impact of the regulations.

The government needs to lead a review of the regulations affecting SCUBA diving. The review should start by working with a range of industry professionals to gain an understanding of modern technical diving practice, note its emphasis on safety and consider the benefits of endorsing international approvals and training agency guidelines. In order for the review to be effective and objective, a team needs to be assembled to conduct it that includes people with a fresh outlook, a reputation for real engagement and an appetite for significant reform.

Organisational support

The following organisations, most of whom are oriented towards more technical diving, support the petition:

- A to Z Diving
- Auckland SCUBA
- Dive Doctor
- Dive East Hawkes Bay
- Dive HQ Whangarei
- Dive Wellington
- Epic SCUBA Ltd
- Global Dive
- Go Dive Marlborough
- Island Bay Divers
- Kiwi SCUBA Divers
- New Zealand Diving
- Northland Dive
- Lust4Rust
- New Zealand Underwater Association
- New Zealand Sea Adventures
- SCUBA Equipment Servicing Limited
- Sidemount Pros
- Tech Dive NZ
- Underwater Obsession
- Wellington Underwater Club

Note in particular the support of the New Zealand Underwater Association, which is particularly concerned with the safety of divers and cylinder fillers.

Officials' advice

If the committee is provided with any advice from government officials in relation to this matter, I would very much like to receive a copy; ideally, I would also like the opportunity to respond to it.

My experience has been that official advice on these matters has been overly technical, dismissive and defensive. In assessing their advice, please ask these two questions:

1. If a cylinder is approved for use in the EU or the US, shouldn't NZ divers be allowed to use it too?
2. If various mixtures of oxygen, helium and nitrogen are prescribed by international dive training agencies in order to dive safely, shouldn't NZ divers be allowed to use these mixes to dive safely too?

Yours sincerely,

A handwritten signature in blue ink that reads "Franz Ombler". The signature is written in a cursive, flowing style.

Franz Ombler