

# 2009 Fast Track Forward 2014 – The Progression of Commercial Diving Safety in Singapore

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Some of you may recall the last article I wrote on commercial diving safety. The article was in issue 04, published in the fourth quarter of 2009! So five years later and where are we on Singapore's commercial diving safety?

In the 2009 article 'What is it & What are the Safety Issues', I started with news of both recreational and commercial diving incidents and fatalities. Fast forward to 2014 and I could start this article the same way. Now if we were to compare the commercial diving industry incident and fatality rate with that of the construction industry, there will obviously be a vast difference in the statistics – working at height is a serious concern with regard to worksite injuries and fatalities. With this comes the high-profile and industry 'buy-in' to Singapore Standards and codes of practice. There is a structured approach to improve safety at the worksites in this and many other such areas that affect the broader and well-known worksites.

On the opposite side of such a high-profile safety awareness campaign for WAH is the "Out of sight, Out of mind" work of the commercial diver. The diving work is often done at remote worksites, with no client or management oversight and control. Divers also often come under peer pressure from clients and management to get the job done.

In the 2009 article, I raised several key points that needed to be considered and addressed for safety practitioners who work with commercial divers (in the shipyards, marine/coastal projects, power plants, etc.)

The key points mentioned previously were:

- **Hazards of Diving** – these are the dynamic hazards involved when working underwater and working under pressure.
- **Work Hazards** – where many are similar to that of a construction site worker; the added element of being in the subsea environment changes these common hazards to high-risk hazards.

- **Training and Competence** – required by all professional industries so why should commercial diving, being the high risk work activity it is, be any different? Following a training and competency standard allows for safer diving practices as well as opportunities for professional career development.
- **Lessons Learnt** – looking back at the history of commercial diving accidents in Singapore and around the world, and how these lessons must be learnt to prevent diving fatalities.
- **Equipment** – Using the correct PPE for the type of work being carried out is a legal requirement in all worksites. Diving equipment is the divers' PPE, so the correct diving equipment should be used for the work task. For example, a self-contained underwater breathing apparatus is great for recreational diving but inappropriate for commercial diving!
- **Regulatory Control and Compliance** – Singapore Standard SS511:2010 "Code of Practice for Diving at Work" and the "Technical Advisory for Inland / Inshore Commercial Diving Safety and Health" provide clear requirements for planning, implementing and carrying out a commercial diving operation here in Singapore.
- **Regulatory Enforcement** – with the more recent commercial diving fatalities that have occurred here in Singapore, we can expect that the regulator will be following up on investigation results with appropriate actions.
- **The Main Challenge** – getting the 'buy-in' from industry and individual commercial divers to follow standards and work safely.

There are two other pointers that I am revisiting. They are: Future Challenges for the Commercial Diving Industry; and Training.

**Training** – Since 2009, along with the revision of the SS511 and the issuance of Technical Advisory from WSHC, a Competence, Training and Assessment Guidance (CTAG) document has been developed. Within the CTAG, training requirements for the commercial diver and diving supervisor are laid out.

Based on these documents and the SS511, KBA Training (KBAT) Centre has completed the Assessment Only Pathway (AOP) for a group of 19 commercial divers and six diving supervisors working for a local diving contractor. KBAT has also completed two full eight-week training courses for 18 divers from a prominent shipyard in Singapore. Along with this, KBAT has run three diving supervisor training courses. Commercial Diving Association (CDAS) had previously



appointed KBAT as its approved training provider. More recently the Ministry of Manpower (MOM) has approved KBAT as an Approved Training Provider (ATP) for both the commercial diver training and diving supervisor training. This will now allow commercial diver and diving supervisor training to be available here in Singapore. Both training will be held to a national standard approved by MOM and endorsed by CDAS with funding available from Shipbuilding and Marine Engineering Employees Union (SMEEU).

Obviously, this is one of the main steps in the direction for commercial diver safety here in Singapore. Upon successful completion of the training, the diver will have been suitably exposed to many aspects of working underwater and is aware of the risks and hazards involved. He will achieve an understanding of fundamental diving theory and the safety management tools that need to be in place before getting into the water as a working diver.

“Self-preservation being the number one safety consideration for any diver”

The commercial diver training, available in Singapore and conducted to the Ministry of Manpower standards, is based on four levels:

#### Level 1 - Commercial SCUBA

**Training** – (Where I have stated SCUBA is not suitable for commercial diving work; there are benign conditions where the use of commercial SCUBA may be allowed. Additionally, commercial SCUBA involves the use of safer equipment.) the minimum equipment required for CSCUBA is a full-face mask, hard wire communications and a life line. Each diver has a secondary bailout cylinder as well as primary breathing cylinder. Diving operations can only be carried out provided a robust risk assessment has been conducted; hazards identified are of an acceptable level; and mitigated CSCUBA may be an option. The diver remains on a life line, has direct communication to the diving supervisor on the surface, and the dive is conducted in a benign environment. The prime limitation of this type of equipment is the air supply the diver carries. This level of training is also required before one can progress on to level 2.

#### Level 2 - Surface Supplied Diving

**Equipment** – allows the diver to dive to a maximum depth of 30m using a diving helmet / full-face mask, with air supply provided from the surface, an emergency cylinder that the diver carries on his back (bailout), hard wire communications and video capability to the diving supervisor on the surface. At the end of the day, there is no commercial diving project conducted in Singapore that should not be using this equipment and method of diving.

#### Level 3 & 4 Commercial Diving

**Supervisor** – the diving supervisor is the person in charge of the safety of the divers on the work site. His roles and responsibilities, attitude to safety and knowledge of diving operations play a key factor in safe diving operations.

Today, in many dive sites the diving supervisor will be in the water diving with the diver! This is not permitted as stated in the regulations and codes of practice. It is one of the prime reasons why divers get injured.

#### Future Challenges for the Commercial Diving Industry

In 2009, the commercial diving industry formed the CDAS. The association membership consists of commercial diving contractors, individuals, diving equipment providers/ manufacturers, commercial diver training providers, and hyperbaric medical practitioners.

The association's executive committee has been working on worksite issues in ship yards and within the anchorage as well as diving safety issues. Working with WSHC, the committee has also been involved with establishing the Singapore Commercial Diver Training Standards. CDAS has recently arranged a Commercial Diving Safety Seminar where approximately 130 delegates attended to learn more about the future of commercial diving here in Singapore. CDAS will be planning more of such networking and seminar events in future. It will continue to encourage individuals, contractors, clients and individuals working within the commercial diving industry to join the association so it can develop the safety awareness and worksite issues with relevant clients and authorities.

Since 2009, there have been more commercial diving fatalities. Now that standards are in place and an association is working on behalf of its members to promote safe diving operations, it is up to the industry to carry out diving work while complying with standards. This is not a case of 'buy the equipment and work'. The standards encompass a whole range

of safety management expected of any worksite. They include: suitable planning; minimum manning levels/dive team size; worksite procedures; risk management; risk assessment; Lock Out Tag Out; management of change; competent personnel; competent supervision of the dives (from the surface and not in the water); suitable diving site work platform / vessel; and emergency procedures (that work when required). The list goes on.

Commercial diving sites in Singapore today in general would not even get past the first item as stated above. So, we do have a great deal of work to do so that commercial divers can go to work, work with the right PPE (diving equipment), follow safety procedures and execute risk management — all these so they can go home to their families.

These standards and compliance requirements are REAL! Clients need to play their part and meet their responsibilities of ensuring a safe worksite. They can do so by establishing a level playing field during the tendering for project and only selecting diving companies that adhere to the requirements of the commercial diving standards. ❖

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*“Self-preservation being the number one safety consideration for any diver.”*

