

# ASI Marine:

## The First Canadian Company to Provide Hyperbaric Tunnelling Support

By Kerrie Ebert, ASI Marine

**H**yperbaric tunnelling is a highly specialized and complicated line of work. As such, it takes a highly qualified team to take on the task.

Since the beginning of 2014, ASI Marine (ASI) has completed nearly 200 hyperbaric interventions throughout Canada. In fact, ASI is the only company in Canada with the ability to complete this type of work.

The hyperbaric tunnelling support team at ASI is involved in all aspects of hyperbaric intervention, including planning, risk assessment, safety and adherence to local regulatory requirements, hyperbaric intervention support, hyperbaric worker training, equipment maintenance, and the servicing of air lock and supporting systems.

ASI has the abilities to plan and manage hyperbaric intervention, oversee and supervise hyperbaric intervention operations, provide on-site medical supporting during and post-intervention and provide on-site hyperbaric support chambers. ASI also provides turnkey project management and acts as a liaison with governing authorities for regulatory purposes.

With hyperbaric tunnelling, it is important to understand the equipment and processes involved with it. An earth pressure balance (EPB) tunnel boring machine (TBM) is a machine developed to operate in a pressurized environment in order to combat against the natural pressures of the earth of which it is being drilled into. The air pressure introduced to the front working chamber of the TBM is slightly higher than the surrounding ground pressure, resulting in a pressurized space that allows workers to work and perform inspections in a safe environment.

In the event that the EPB TBM breaks down in the middle of a given project, the ASI hyperbaric support team is called in. Required to be on-site during various stages of a given tunnelling project, ASI's highly-trained individuals are trained to perform construction and repair work, along with inspections in high-pressure environments.

When workers pass from a regular atmospheric environment to a pressurized space, they require an

air lock system for the equalization of the differential air pressures. An air lock system is fitted to the very front of the TMB, allowing access to the working chamber. Workers enter into the lock chamber, where there are two sets of sealing doors at opposite sides. Once entered into the lock chamber, the doors are closed and pressurized air is pushed into the air lock until the air pressure matches the air pressure outside of the machine. Once pressures are equalized, the second set of doors is opened, and workers crawl into the working chamber and begin performing their duties.

Because this environment contains air pressure that is of a higher atmospheric pressure than people are accustomed to, workers must be aware of the physical risks associated with such work and must receive specialized training in order to do so. ASI is aware of these risks, and employees receive the necessary training. Due to the dangerous nature of this work, the ASI team has a decompression chamber on-site at each project location, along with emergency medical staff and written evacuation procedures in case of an emergency.

In addition to being the first and only company in Canada to complete hyperbaric tunnelling/interventions, ASI sets itself apart professionally by its commitment to providing exceptional client service through its in-house quality management system, along with its strict adherence to health and safety rules. Additionally, ASI is registered to ISO 9001:2008, Technical Standard and Safety Authority, International Marine Contractors Association and Lloyd's Register Approval of Service Providers.

For more information on ASI's hyperbaric tunnelling support, please contact Scott Black, senior operations manager: commercial diving and tunnelling support, at [sblack@asi-group.com](mailto:sblack@asi-group.com). 🍁

ASI Marine (ASI) is an affiliate of ASI Group Ltd., a 120-person firm founded in 1987 by a core group of individuals with backgrounds in marine biology, commercial diving and marine construction. ASI has grown extensively throughout its existence, providing industries and governments worldwide with leading-edge underwater services focused on the assessment, maintenance, rehabilitation, and construction of underwater infrastructure and environments.



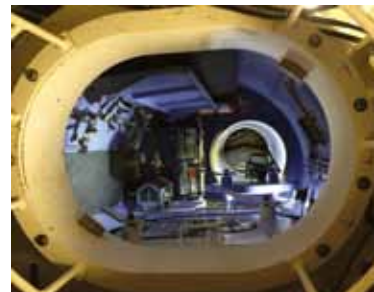
ASI Marine's hyperbaric tunnelling specialist, Jerry East, and technician Thomas Koop standing on a TBM's air lock platform.



A TBM air lock.



Divers entering the working chamber from a TBM air lock.



Inside of a TBM air lock (auxiliary chamber).