



WHY are today's consultants taking an increased interest in safety?

There are many reasons why both consultants and drill rig operators should work together to shape the future of safe drilling in Australia. Principal **Peter Brown** from Golder Associates offers a consultant's view on drill rig safety risks, issues and solutions.

Drilling is a vital component in the development of most Australian infrastructure and mining projects. At Golder Associates, we call on the services of the drilling industry for the majority of the geotechnical and many of the environmental projects we undertake. The knowledge, service and specialist equipment provided by the drilling industry allows our global company to deliver the excellent technical solutions our clients demand.

However, drilling also carries health and safety risks as evidenced by various accidents and incidents not only in Australia but around the world. In this article, we will explain why consulting companies are becoming increasingly focussed on more stringent safety practices.

Why can drilling sometimes be unsafe?

With the increased focus on safety most large consultants now have an in-house register which records and documents incidents that happen in their day-to-day operations. This allows us to collect and assess a vast amount of information about our activities including drilling. While the basics of drilling have not changed in the 50 years Golder Associates has been operating worldwide, attitudes to safety have, and it is now time to focus on ways in which we can improve safety on site together. Looking back over this period, we have identified five main areas of risk in site investigation drilling, including:

Physical risks. These are the risks associated with working in close proximity to mechanical equipment in often difficult conditions. Physical risks include rod breaking and handling, using hand tools around a rotating drill, and the chance of catching clothing or parts of the body in rotating equipment. These risks can be serious, potentially resulting in major injury or death but more commonly resulting in crushing or pinching trauma. Physical risks are the most obvious and among the more common causes of personal injury.

Underground and overhead services risks. These are the risks of coming into contact with an electricity line, gas main, telephone cable, water or sewerage pipe or other service. At one end of the scale, 'hitting' a service such as a domestic water supply can be inconvenient and embarrassing. At the other end, striking an electrical conduit or rupturing a gas main can result in serious injury or death.

Environmental risks. These are the risks of causing some form of damage to the environment around the drilling area. The result may be as slight as soil compaction from drill rig equipment or as severe as contamination (such as releasing methane or spreading leachate) if drilling near landfill. It may also include personnel on-site coming into contact with contaminants in the soil or the groundwater.

Risks associated with working on remote sites. Many projects are carried out in the open on remote sites. Fatigue could result from driving the long distances required to reach the site as well as working long days in what could be very hot or cold and wet conditions. Working in remote areas can also make it more difficult to get help when an incident occurs.

Equipment risks. These are the risks involved with the failure to adequately maintain the drill rig and related machinery. They could include issues such as oil or hydraulic fluid leaks or hoses splitting.

In reading through the list above, which is by no means definitive, it is easy to understand why most rig operators, owners, contractors and consultants have come across at least one driller who has suffered an injury. Consider the following cases which have resulted in significant injury and death when physical risks were inadequately managed.

Case Study – Victoria, Australia

While working close to an unguarded rig, an operator of a soil sampling drill caught his hair in the spinning auger. As a result of not being isolated from the physical risk presented by the rotating auger, the operator was scalped. He was then required to run 50 metres for help. He had several operations to his ear, neck and head. This incident may have been avoided had the auger been fitted with a guard and the operator worn appropriate Personal Protective Equipment (PPE) to shield his hair.

Source: *WorkSafe Victoria*

Case Study - British Columbia, Canada

A driller and his helper were tying a piece of equipment out of the way while under the raised casing hammer of a drilling rig. The drilling rig had been re-designed without the safeguards for its free-fall controls. As the driller walked out from underneath the raised hammer, he bumped against the free-fall control lever. As a result, the 2,000-pound (900-kilogram) hammer dropped about 8 feet (2.5 metres) to the

holding table, striking the driller's helper. There were no restraining devices on the casing hammer to prevent it from falling after the control lever was inadvertently engaged. The driller's helper suffered a severe leg injury.

Source: *WorksafBC*

Case Study - Ontario, Canada

The rig involved was a trailer-mounted CME55. The driller was cleaning out the hole, rotating the augers at high speed. His shoe laces were untied. While using his foot to clear cuttings, his shoe laces became entangled in the rotating augers and the driller was caught in the spinning machinery. It is believed the driller died of head trauma, possibly when he struck the ground as he fell or the drill rig as he rotated with the augers. The drill rig had no emergency stop switches or cages.

Source: *Hamilton Spectator*

Drilling is a high risk activity. When the risks are not recognised or managed, drilling becomes unsafe. This means that collectively we all have an enormous responsibility to identify and protect each other from these risks.

What are the issues that drillers and consultants must face together?

Consultants and drilling operators don't live in a 'time bubble'. We are impacted by many requirements inside and outside our industries. If we are to keep improving drill rig safety, keep our companies profitable and keep delivering solutions for clients, then we will need to provide solutions to the internal and external requirements.

Societal changes. Over the past two decades, there has been a growing emphasis on workplace safety in the community. Standards and expectations have increased, particularly following high profile industrial accidents such as Longford in Victoria and Beaconsfield in Tasmania. As society becomes more aware and knowledgeable about safe work practices, our industries will be expected to change.

Regulatory challenges. A challenge for law makers, regulators, drilling rig owners and consultants is determining what constitutes best practice or an acceptable minimum standard across states and territories. While the process can be confusing and frustrating, only proactive participation and open communication between stakeholders will lead to effective safety standards across Australia.

Legal issues. From a consultant's perspective, the legal consequences of unsafe drill rig safety can be extensive. When a consultant engages a drilling professional, that driller effectively becomes an employee. Consultants are therefore deemed responsible both legally and morally for any unsafe drill rig practices which can translate into injuries, trauma, regulatory involvement and damaged reputation.

Commercial impacts. Unsafe drilling can have a knock-on effect for consultants and drillers. Many of our clients are global and award work on a global basis. In industries such as the oil and gas industry, clients routinely ask for organisation-wide health and safety statistics. For consultants, a blemished safety record can potentially reduce work prospects locally and internationally.

Technological advances. As technology improves all the time, drill rig owners have to balance the need for improved safety equipment and the additional expenses this imposes on their business.

How can we approach the future together?

Given the complexity of the issues and their interconnected nature, there is no 'magic bullet' that will advance drill rig safety in Australia. However this cannot be seen as an excuse for inaction. It is important that consultants and drillers work together to

take control of safety issues in our industry. We are the ones who know and understand what we do.

At Golder Associates, we see three trends emerging in the near-term that will be advantageous to drill rig safety and integral to this evolutionary process.

1. Increased awareness of drilling safety among operators, owners, contractors, consultants, business, government and the community
2. Industry groups acting as champions and providers of safety resources and training to small and medium-sized drill rig owners, and
3. A gradual move toward a common minimum standard for drilling safety in Australia.

Consultants and their clients want a safe workplace for all and understand that there are costs involved in retrofitting guards, emergency stop buttons, or other necessary safety measures and accept that they will need to bear an appropriate share of these costs. The need to have a safe work place for all is paramount.

Looking out for each other

In summary, drill rig safety is an evolving movement with many needs shaping its future. Two significant needs are the moral obligation to protect all Australian workers and regulatory requirements.

Drilling professionals and consultants play central roles in shaping the future. Sometimes drillers and consultants disagree on how safety should occur in practice. Drillers and consultants mostly agree however, that drilling has its own risks. As a global consultancy with 50 years experience, we have experienced a lot of drilling conditions around the world from the frozen north of Canada to the outback of Australia. The risks associated with drilling come in many forms, beyond the obvious, and have potentially very severe consequences. These include not only the risk of potentially severe injury or death but also adverse commercial impacts on both drill rig operators and consultants. As the future of drilling safety evolves in Australia, there will be many discussions on what exactly constitutes safe drilling, best practice and a minimum common safety standard. Importantly, we expect there will also be discussions about our shared moral obligation – that we have a basic duty of care to look out for each other.

Peter Brown is a Principal Geotechnical Engineer with Golder Associates in Melbourne. He is a member of the Institution of Engineers and is part of the Association of Consulting Engineers Australia (ACEA) - Australian Drilling Industry Association (ADIA) taskforce assigned to develop a national standard for drill rig safety. www.golder.com

STANDARD HEAT EXCHANGERS NOT COOLING YOUR GEAR EFFECTIVELY?
"CALL US FOR A CUSTOMISED COOLING SOLUTION"



PURCHASE PICTURE ON TUESDAY

ALLIED HEAT TRANSFER

P: 08 9455 5933 E: info@alliedheattransfer.com.au W: www.alliedheattransfer.com.au