



Quad bike case study—Making quad bikes safe for workers

Since 2009, quad bikes have been used in the Great Barrier Reef Marine Park to monitor sensitive foreshore areas. In an area recognised internationally for its amazing biodiversity and outstanding natural beauty, quad bikes have been used based on their size and relatively low impact. A spate of quad bike injuries and fatalities on Australian farms, however, prompted two reviews by the Commonwealth in 2012 and 2013.



Australian Government

Comcare



The first was led by Comcare and looked at the use of quad bikes by Commonwealth agencies. The findings, released in March 2012, prompted the Great Barrier Reef Marine Park Authority to undertake a rigorous risk management review.

The Authority's Field Management Compliance Coordination Unit already had a thorough and robust approach to the safe use of quad bikes in the Park in place. The approach focused on training, maintenance, operation, and risk assessment.

In this fresh review, the Unit looked at whether quad bikes were the right solution for the tasks it had to undertake. In particular, the review focused on control measures already in place and considered what alternative vehicles might be used. It also looked at appropriate safety measures and protective equipment for workers.

While the Unit's review found quad bikes met operational needs and that existing control measures were adequate, a ministerial announcement in October 2012 recommended a program to control risk through not only vehicle selection, but effective safety controls and rider training.

EXPLORING SAFETY SOLUTIONS

The first step for the Unit was to investigate installing crush protection devices—or quadbars—on its bikes. A quadbar is a hairpin-shaped hoop, mounted behind the rider, designed to counter some of the risks associated with rollovers.

Crush protection devices were described as 'an effective engineering safety control' in the ministerial announcement, when combined with personal protective equipment for riders.

Research led to an article entitled 'Quad Safety Devices: A Snap Shot Review' by Dr Wordley and Dr Field at Monash University. This comprehensive article addressed the following questions:

- > What types of crush protection devices were available?
- > Had an independent comparison and assessment of devices been undertaken?
- > Were the devices effective in reducing the rate of injury during rollover incidents?
- > Were there any concerns with crush protection devices increasing the injury rate or severity of injury?
- > Were there any engineering standards the devices had to meet?

The article provided the following answers:

- > There was no substance to concerns raised about safety and crush protection devices in earlier studies.
- > The quadbar had the potential to reduce harm to a rider and provided a protective space between the vehicle and the ground.
- > Leading causes of death from a quad bike rollover are asphyxiation and crush injury, which meant a quadbar should be particularly effective.
- > Loads on the quad bikes were a significant factor in rollovers.
- > The quadbar met New Zealand Occupational Health and Safety Standards.



DUE DILIGENCE

Due diligence was the next step for the Unit; to see if the quadbar would be suitable for the work undertaken in the Park. This meant reviewing reports and data from tests done by the University of Southern Queensland and gathering testimonials from users. This evidence-based approach showed the quadbar was the most suitable and effective product for the Unit, and they were installed on all quad bikes at the Park in December 2012.

The only remaining hurdle was convincing workers the bars wouldn't impose any operational limits. Workers were worried about the height of the quadbar—that it might become entangled in low overhanging vegetation. To mitigate this risk, the Unit ensured these routes are always avoided.

Sharing the results of the research also helped to dispel concerns, as workers learned of the risks quad bikes posed when not fitted with effective protective safety devices.

Installing the quadbars has provided a safer working environment for staff at the Park, as well as personnel from other agencies that work within its boundaries.

LESSONS LEARNED

The experience of the Great Barrier Reef Marine Park Authority highlights the importance of understanding whether quad bikes—or any vehicle—are the best for the job. To work this out, agencies need to undertake a thorough risk assessment that reflects how the vehicle is to be used. Other factors to consider include engineering safety measures, procedures, and protective equipment for workers.

WHAT IS THE BEST VEHICLE FOR THE TASK?

Persons conducting a business or undertaking must choose the safest and most appropriate vehicle for the tasks that workers carry out, the first thing to do is a risk assessment. Is the vehicle you're using the best option? If it is, address the risks associated with it against the following list:

- > Eliminate the hazard—consider a safer alternative.
- > Isolate the hazard—assess the terrain and where it is safe to use the vehicle.
- > Engineering controls—what approved modifications are there?
- > Administrative controls—training, processes and procedures.
- > Personal protective equipment—helmets and other protective clothing or equipment.
- > Monitor and review—continually monitor for hazards.