

## Case Study - Lihir Gold Mine

Using Virtual Reality training for  
complex high risk electrical  
tasks in a remote mining context

*In collaboration with*



**NEWCREST**  
MINING LIMITED

# Introduction

Newcrest Mining owns and operates the Lihir Gold Mine in Papua New Guinea (PNG) and was investigating ways to improve training outcomes, particularly for high risk tasks involving high voltage electrical switching. By utilising the latest in VR hardware and customised Practon VR software, we were able to increase trainee engagement and confidence whilst reducing hazards to trainees and plant downtime required for training.

## The Challenge

The main challenges included:

- Improve training outcomes for electricians who were disengaged with slide show presentations and potentially confronted by language barriers.
- Reduce or remove the hazards associated with high risk electrical training, in particular, electrocution and arc flash.
- Reduce or remove training access to switch gear, as this equipment is in constant use for the Lihir gold process plant.
- Provide packaging of any equipment for transport to a remote mine site and ensure that it arrives safely as spare parts are unavailable locally.



# The Project

Practon Group collaborated closely with Newcrest's electrical team at Lihir to develop a customised VR training package. Working along with our software development partner, Sentient Computing, we simulated the switch room environment, the electrical assets as well as the site switching procedures.

We improved training outcomes for electricians by engaging them with an immersive VR experience that required them to actively partake in the training rather than just watching another slide show. Also, as the training was active rather than passive, language was less of a barrier.

By utilising VR simulation, the electricians can safely and repeatedly practise complex and typically hazardous electrical tasks. This not only removes the hazards of electrocution and arc flash to trainees but also allows them to make mistakes and try again. In the VR environment, they are able to learn by doing the task repeatedly until the trainer is satisfied of their competence.

Another benefit is the reduction to plant downtime and improved training flexibility, as the trainee can undergo the VR simulated training at any time and take as long as they need. Once deemed competent they can move on to live training and minimise the access required to high value assets.

A custom ruggedized hard case was designed to house all the VR equipment which allowed it to be safely transported via aeroplane. This custom package included everything required to setup a VR training environment in any location whilst weighing in at less than 20kg so it can be checked-in as luggage for both domestic and international flights.



# Outcomes

Newcrest's Lihir electrical team provided drawings, photos, videos and procedures from which to base the VR simulation. Sentient Computing's team of 3D artists and programmers then built the immersive simulation and interactive assets.

After many iterations of testing and tweaking, the final build was ready and the Practon project manager personally flew to Newcrest's Lihir operation in PNG to deliver and train the team on utilising the VR hardware and software.

*I feel more relaxed at it because of the awareness of no voltage available. Great tool for a starter at HV. I'd rather do this and gain confidence than doing it live online switchgear with the fear of doing it wrong and sweaty in the HV suit.*

**Augustine Banovo**  
**(Electrician)**

Over a 2-day period, all members of the electrical team from both crews were taken through the VR experience and allowed to experiment, fail, learn and ultimately succeed in completing the complex training. We are proud to say we received some fantastic feedback from that initial session.



The VR training program continues to be used by the Lihir electrical teams to great success. More recently, Newcrest commissioned an extension to the program which included the earthing functions as well as even more complex switching programs requiring the interaction of two high voltage switches at the same time.

*I believe it is good because it will provide more practice for new HV trained personnel before actually putting them in real HV switching. Some personnel haven't worked on HV equipment before on other job sites.*

**George Mamani**  
(Electrical Supervisor)

*I'm very impressed with the VR training package that has built for us by Practon using our very own FGO high voltage switch room. Around 90% of participants were able to seamlessly interact with the environment within minutes of their first exposure to the technology leading to a rewarding training experience.*

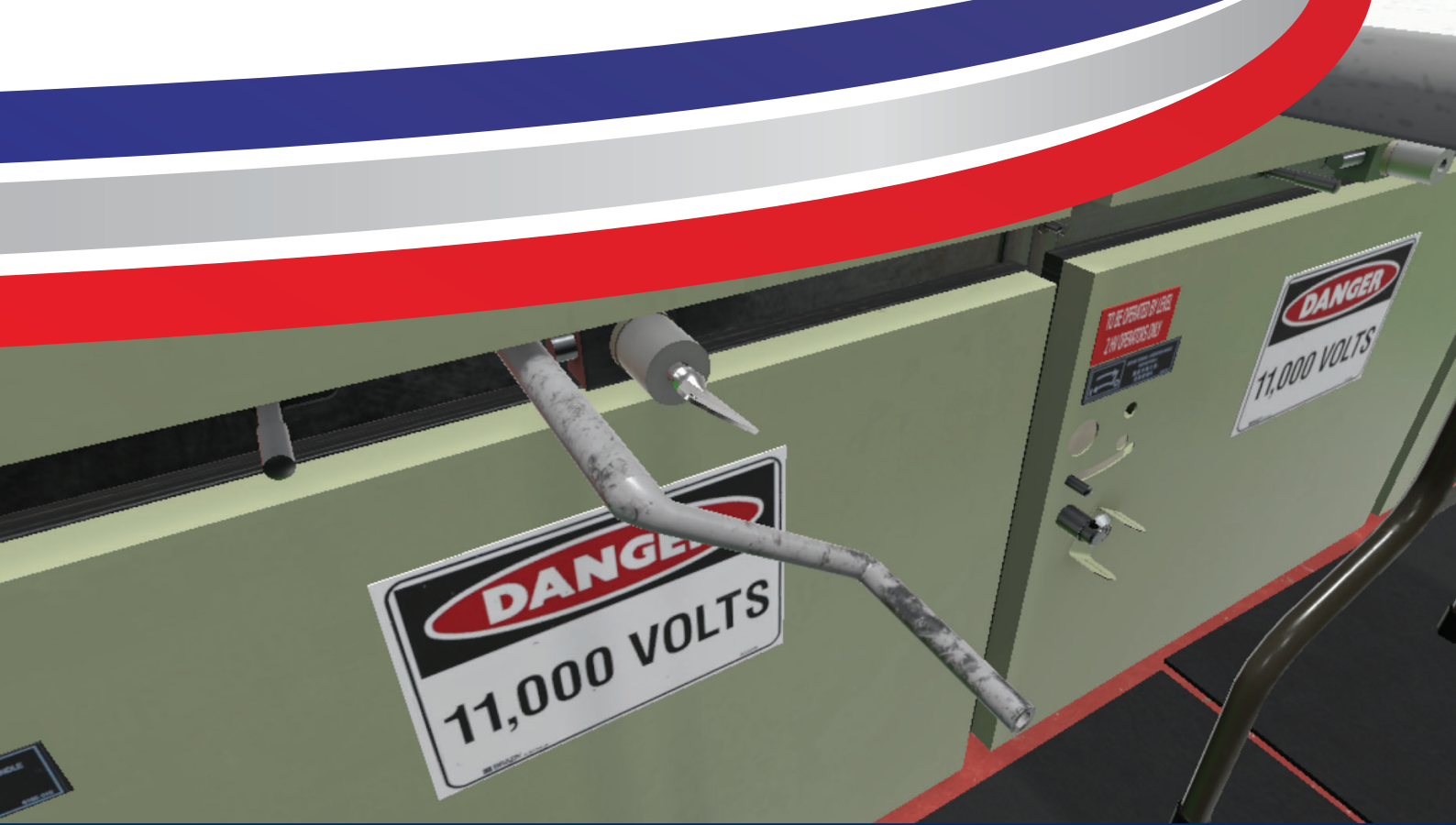
**Shaun Tomley**  
(Electrical Coordinator)

We look forward to continuing to work with Newcrest and the team at Lihir as we expand the VR training program to include additional switch rooms around their process plant and beyond.



# PRACTON VR

VIRTUAL REALITY TRAINING



## ***About Practon Group***

Practon Group is an electrical contractor with extensive experience working in the Australian mining industry.



## ***About Newcrest Mining Limited***

Newcrest is one of the world's largest gold mining companies. They safely deliver superior returns to their stakeholders from finding, developing and operating gold and copper mines.



Head Office: Level 1, 30 The Esplanade, Perth , WA 6000, Australia  
Workshop: Unit 8/14 Fields St, Pinjarra, WA 6208, Australia  
Postal: PO Box 389, Maylands WA 6931

Phone: +61 8 9531 1583  
Web: [www.PractonGroup.com.au](http://www.PractonGroup.com.au)  
Email: [sales@PractonGroup.com.au](mailto:sales@PractonGroup.com.au)

