

Case Study – Brisbane Airport Link Tunnel, Australia

Background

Brisbane's airport link tunnel is an extensive 6.7 km tollway project planning to connect Brisbane's CBD and the North-South Bypass tunnel to the northern arterials of Gympie Road and Stafford Road leading to Brisbane's sole passenger air terminal and Australia's 3rd largest airport, "Brisbane Airport". The total distance of all tunnels combined will be approximately 12 km. The tollway project, at a cost of \$3.4 billion was awarded to BrisConnect (Thiess, John Holland) on 2 June 2008. The toll road opens in 2012.

Challenges

The Brisbane Airport Link construction project will consist of 4 major tunnelling sites, with a fifth opening at a later stage. Each site will have its own Communications Rack system. From the Head End of each site is an underground distributed radio communications system capable of operating in a tunnelling environment and capable of expanding as tunnelling operations proceed. Each of the four systems will have an Emergency Channel, which will broadcast across all other channels on its system.

Each site will have their own Safety and Emergency Coordinator who will use a Motorola portable radio capable of displaying the ID number of each of the 58 programmed EEU (Emergency Evacuation Units) as well as controlling the Emergency Evacuation System (EES). These radios will have normal voice communication via the channels of the specific radio system it is dedicated to. If an Emergency Broadcast is required the Coordinator's portable will set off the EES using the specified button on their portable. The individual EEU must communicate through the underground Leaky Feeder Distribution System to the Coordinator's portable who will determine whether the situation calls for an Emergency Broadcast or not.

Once all the sites merge, the idea is to invert the direction of the amplifiers and have once central communications point, i.e. one central Head End and a long tunnel.

Minecom Solutions

Minecom's role is to manufacture/assemble, supply, install and commission three communications racks for Kedron, Bowen Hills and Truro sites. Each rack must have four channels of which one is used for emergencies only. Minecom will install all racks and provide surface coverage (around 500 metres) for surface communications and supply portables and mobile radios to meet site requirements.

Minecom programmed the entire system and interfaced an underground channel with an existing surface channel.

Since the original system was commissioned, the fifth Head End has been added.