



# Mapping staff safety in real-time

QGC

Discover how real-time GIS technology has revolutionised the health and safety approach of one of the country's leading natural resources companies.

### Project overview ⊕

To help ensure the well-being of thousands of staff and contractors working across regional Queensland, natural gas producer QGC and Esri Australia have created a world-first solution for real-time location and safety monitoring.

The solution was devised following severe floods in 2009, which devastated large parts of regional Queensland and prompted QGC to investigate how Geographic Information System (GIS) technology could be used as part of a ground-breaking Duty of Care Integration Programme (DOCIP) project. The project aimed to implement a system that could rapidly locate staff working in remote locations during an emergency and quickly communicate with them.

To achieve this, QGC implemented Esri's ArcGIS platform to help consolidate real-time data feeds about the location of its personnel, which were previously held in several isolated systems.

The new system brought together information – including staff and vehicle locations and alarm and threat information – into a custom-built operational dashboard, providing QGC's safety and security teams with a live overview of the organisation's operations.

The first-of-its-kind solution can pinpoint the location of staff within seconds – which has revolutionised how QGC approaches health, safety, security and environment (HSSE) requirements.



### ⊕ QGC in focus:

QGC Pty Limited is the Australian operation of BG Group plc. London Stock Exchange-listed BG Group is a world leader in natural gas with a broad portfolio of business interests focused on exploration and production and liquefied natural gas (LNG). Active in more than 20 countries on five continents, BG Group combines a deep understanding of gas markets with a proven track record in finding and commercialising reserves.

In December 2014, QGC became the first operation in the world to produce LNG from natural gas sourced from coal seams and is now adding volumes and flexibility to BG's global LNG portfolio.

The start of production from QGC's first LNG train is the result of more than four years' of development and construction on Curtis Island near Gladstone and in the gasfields of the Surat Basin through the US\$20.4 billion Queensland Curtis LNG (QCLNG) project.

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## ► The challenge:

Floods, bushfires and vast driving distances are part of life in Australia, and these unique hazards and risks represent a significant challenge for QGC, whose staff and contractors work at locations dispersed across thousands of kilometres of regional Queensland.

QGC has more than 2,350 wells and more than 20 existing gas processing facilities and water treatment plants on tenements in the Surat Basin and exploration tenements in the Bowen and Cooper basins – altogether covering more than 33,000 square kilometres.

QGC sought a solution to manage the whereabouts and safety of its staff and contractor workforce during the major construction phase of the Queensland Curtis LNG Project and long-term operations.

This challenge was underlined when record-breaking floods devastated parts of regional Queensland in 2009, requiring QGC to quickly account for and communicate with all its field-based workers.

At the time, QGC had several systems which contained information relating to staff location; however, they were not configured to interact with each other in a common operating platform.

To address these challenges, QGC sought a single-platform technology solution that would:

- + Provide a level of situational awareness to ensure the safety of staff who collectively drive more than 1.5 million kilometres every month over isolated and sparsely populated areas.
- + Facilitate the collation of information from in-vehicle monitoring devices, alarm services and access card systems to provide real and near real-time location information.
- + Improve emergency and incident response and the awareness of hazards and restrictions.
- + Monitor areas of safety concern.

## The solution:

Esri Australia's Professional Services team presented QGC with a solution built on the ArcGIS platform – specifically, ArcGIS for Server coupled with GeoEvent Extension.

The solution integrates multiple feeds from disparate data sources, creating a dynamic mapping environment with one authoritative, up-to-date overview of operations.

The system, known as the Duty of Care Integration Programme (DOCIP), connects a number of sources – such as Closed Circuit Television (CCTV); Access Control Systems (ACS); Perimeter Intruder Detection Systems (PIDS); In-Vehicle Monitoring System (IVMS); a digital radio system; and, emergency alerts – into a single command and control interface that can quickly locate, account for and respond to personnel at risk during an emergency.

A key capability of the platform is real-time data monitoring. QGC use the GeoEvent Extension to establish 'geofences' – virtual boundaries placed around an area that, when crossed, trigger a signal to indicate someone is leaving or entering the area.

## The innovations:

The Esri Australia Professional Services team leveraged the unique capabilities of the ArcGIS platform to ensure the solution met QGC's exact requirements.

### A single command and control interface

The technology integrates multiple information feeds into a single command and control interface, providing a near real-time picture of every aspect of the organisation – including the current location of all personnel.

Ultimately, it means QGC can easily monitor areas of safety concern, work fronts and restricted areas, readily locate staff, and make better-informed decisions during crisis situations.

### Real-time staff location capability

By leveraging the ArcGIS platform and more specifically, Esri's GeoEvent Extension, QGC can now instantly account for staff and contractors – placing the company at the forefront of safety standards in the resources sector.





## The technology:

ArcGIS GeoEvent Extension for Server is a real-time data management tool that connects with virtually any type of streaming data feed to transform GIS applications into frontline decision-making applications.

GeoEvent Extension tracks, maps and analyses both dynamic assets that are constantly changing location – such as vehicles, aircraft, or vessels – as well as stationary assets – such as weather and environmental monitoring stations – to provide a comprehensive real-time view of a situation.

Armed with this insight, users can be confident they are making decisions based on the most accurate, up-to-date information available.

The technology includes connectors for common data streams, such as in-vehicle GPS devices, mobile devices, and social media providers.

“By instantly accessing comprehensive, up-to-date information, QGC can now quickly form a clear understanding of a situation, account for its people and make timely, targeted, and informed decisions.”

## The outcomes: ⊕

- + **Greater situational awareness.** By instantly accessing comprehensive, up-to-date information, QGC can now quickly form a clear understanding of a situation, account for its people and make timely, targeted, and informed decisions.
- + **Driver behavioural change.** The system enables QGC to have a better insight into the driving behaviour of its staff and contractor workforce. By analysing historical data around staff and vehicle usage, QGC can better manage its Zero Tolerance Driving Behaviour policy and support additional levels of safety for the company.
- + **Synchronised security systems.** The system's 'geofencing' function provides a more efficient means of managing security risks. When a staff member or contractor crosses a geofence, system operators receive notification that someone is leaving or entering a high-risk area. This function is particularly valuable during bushfire season as it instantly identifies who is in a fire-affected area, and provides warnings and advice on evacuation routes.

### Solution mix:

- + Esri Australia Professional Services
- + ArcGIS for Server
- + GeoEvent Extension for Server

Discover the value Esri Australia's GIS technology solutions will deliver to your organisation.  
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